

An in-depth study of forest products industries in the Pacific Northwest

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Southern Africa forest resources



- Forests and woodland types in Southern Africa include; tropical rainforests, afro-montane forests, mangrove forests, Zambezi teak forests, miombo woodlands, mopane woodlands and Cape floristic centre forests.
- Conifer species native to Australia and Mexico are grown commercially in tree farms across Southern Africa.
- In 2000 total fuelwood consumption was estimated at 178 million cubic meters, which is 87% of roundwood production in the region.
- There is growing pressure to sustainably manage forest resources.

Sawmilling in Zimbabwe



- Types of sawmilling.
- Current state of the forest products industry.
- Production outlook.



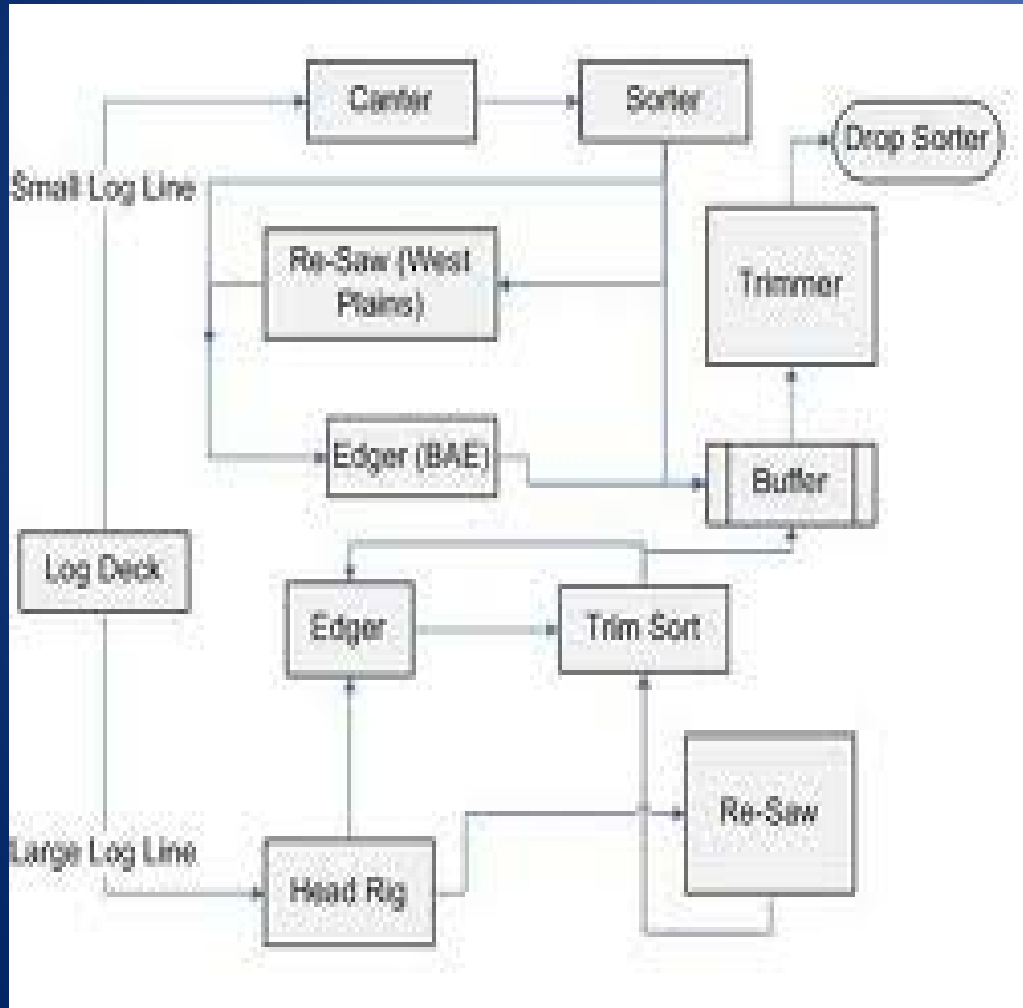
The Pacific Northwest region



- The PNW refers to the forested areas within the US states of Oregon, Washington, northern California, Montana, Idaho and the Canadian province of British Columbia.
- Composed mostly of conifers, these forests west of the Cascade Range are adapted to the wet-mild winters and warm-dry summers typical of the region.

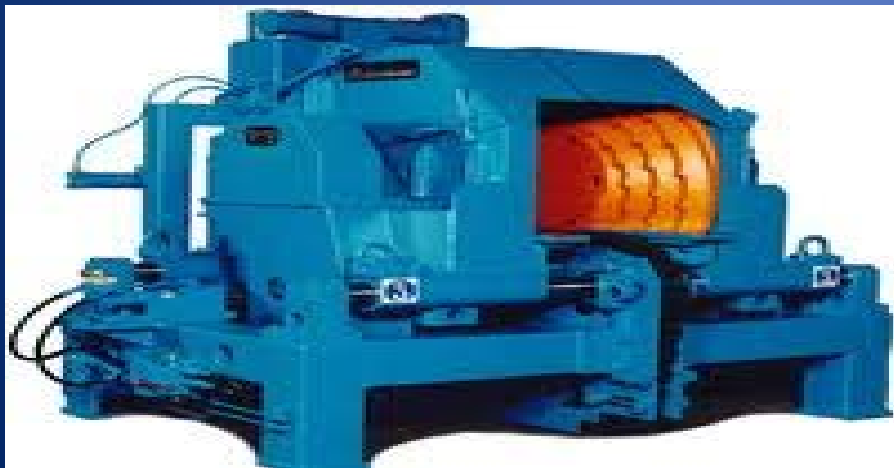
Wood products industries in the PNW

Sawmill layout and flow diagram



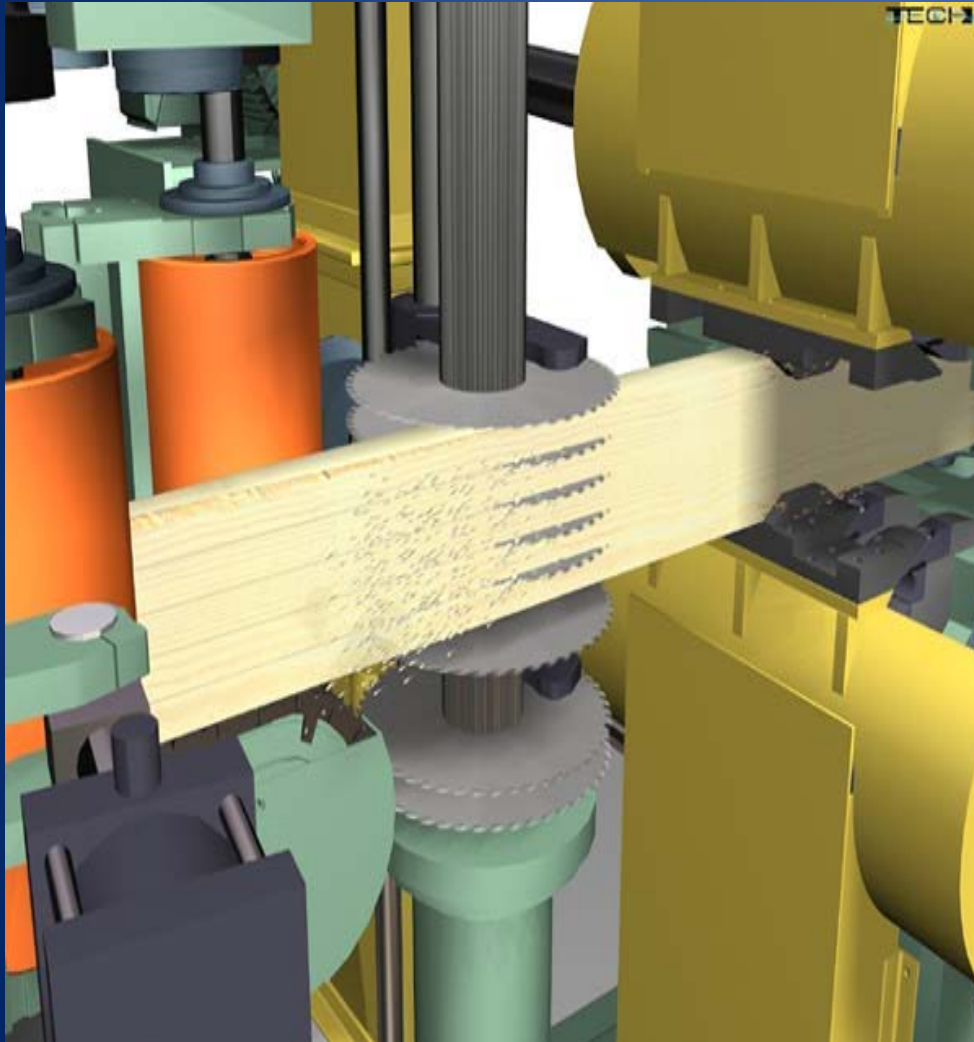
- Every sawmill is unique.
- Differences in raw material, desired products, mill history and capital budget mostly determine what type of system is used.

Primary breakdown



- Band-saw or circular-saw headrig machines
- The three most common types of single-pass headrigs in use are the; chipper canters, scragg mills and multiple-band headrigs.

Secondary breakdown

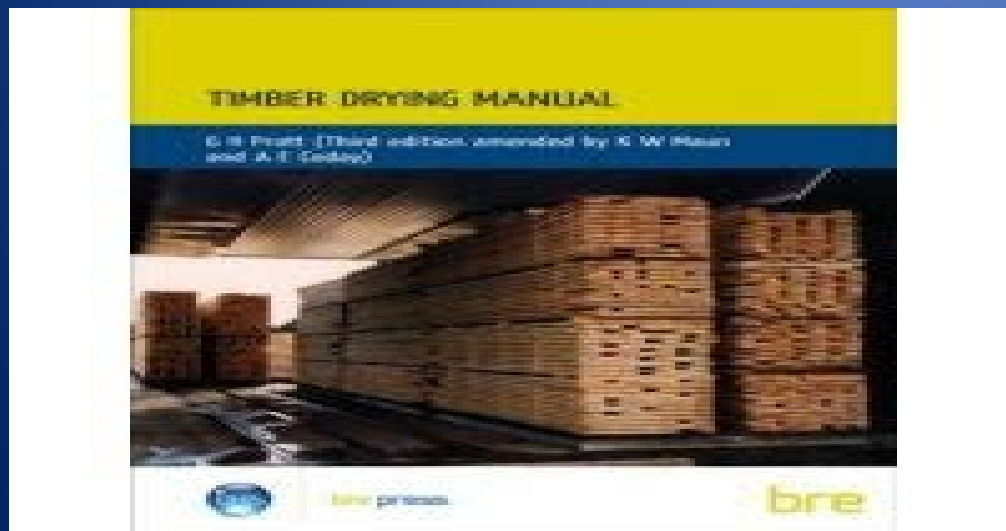


- After primary breakdown on the headrig, lumber may only require cutting to width (edging) and length (trimming).
- In most mills however, sawing cants into boards is required.

Drying, Sorting and Finishing



- Before lumber is dried, it is usually sorted by grade, size and species.
- After softwood lumber is dried and surfaced, it is graded, finish trimmed, grade stamped, sorted and packaged for shipping.



Biomass and residual processing



- Worldwide, the primary use of wood today is still as fuel for heating and cooking.
- Biomass (190 million tons) currently provides more than 3% of US energy needs.
- Sources of biomass are; round-wood, mill residues, logging or woods residue, urban and industrial waste streams (paper, paperboard, wood pallets, railroad ties, demolition wood, urban tree removals, etc) and dedicated short rotation woody crops called energy plantations.

What is biomass cogeneration?

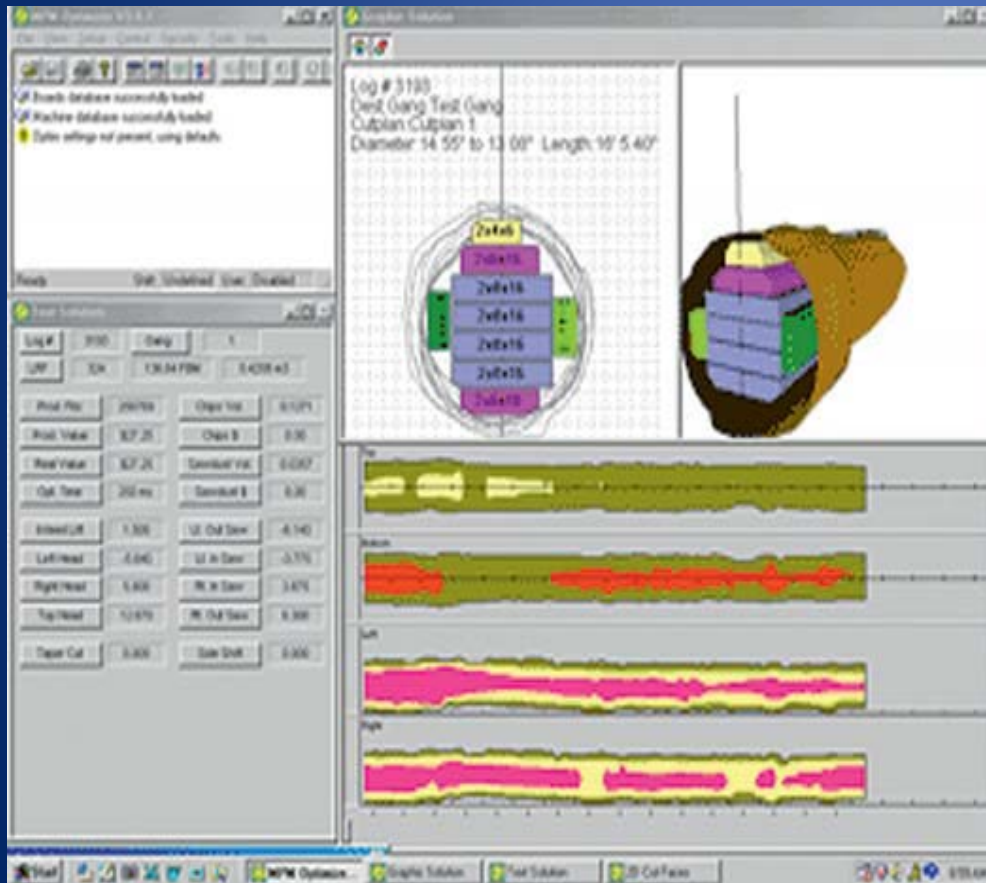


Improving sawmill efficiency



- Incremental improvements.
- Even in the best run operations, there are usually many ways in which things can be done differently to improve earnings.
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Optimizing sawlog breakdown



- Debarking.
- Log sorting is a costly operation that appears to add no value, but is essential to efficient processing.
- Cutting pattern is determined by the available saws, the log quality and size, the market demand and the sawyer.
- Optimal cutting solutions.
- Scanners act as log scales (measuring log volume).
- Computer tomography.

Material flow



- The smooth flow of wood is an essential prerequisite of an efficient mill.
- Infeed systems.
- On the green chain, material is sorted to length, by thickness, and also for species and grade.
- The scale of any business depends on the markets that one is in.

Capacity trends

- The cyclical nature of sawmilling often leads to capacity changes.
- As of June 2009, the conventional softwood lumber industry in the United States and Canada consisted of 891 sawmills with a combined capacity of 167 million cubic meters (71 billion board feet) per annum.

PNW lumber using markets



- During normal economic conditions in the United States, single family homes consume the largest share of lumber.
- In an increasingly global trading system, offshore markets form another outlet for lumber.
- Steel, brick, concrete block, poured concrete, wood-plastic composite lumber and vinyl are important non wood competitors.

PNW price and cost trends

- To be viable, any business needs prices for its products to cover costs and yield a reasonable return on capital.
- Due to the cyclical nature of the sawmilling business, prices adjust rapidly in response to shifts in demand and supply.

Typical sawmill operating costs, revenue and gross margins

	Oregon						British Columbia		
	Costs				Revenue	Margins	Costs	Revenue	Margins
	Wood	Labor	Other	Total (\$/m3)	(\$/m3)	(%)	Total (\$/m3)	(\$/m3)	(%)
2003	88	20	18	125	131	4	90	90	0
2004	101	20	19	140	178	21	99	130	24
2005	108	21	19	148	157	6	111	123	9
2006	102	21	19	142	134	-6	111	108	-3
2007	86	22	19	126	110	-15	102	90	-14
2008	60	22	19	101	98	-8	90	80	-12

Economic questions



- Housing construction
- Home construction thrived in the earlier part of last decade when interest rates were low and relaxed credit controls made loans easily available.
- Multi-unit apartments will increase from 17% of the mix (2006-2010) to 23% in this decade and 25% after 2020.

Market growth initiatives

- Promotional campaign funded by an industry-wide program.
- Attempts to increase lumber use in the building materials markets require that lumber's weaknesses be addressed.
- One potential is heat treated lumber.
- Another potential area of opportunity is modification of lumber coloring.
- A further market prospect is framing for low-rise non-residential buildings.

Recommendations for sawmilling in Zimbabwe

- Gradual modernizing of existing equipment.
- Engagement of consulting firms that will handle an entire project and assist in arranging finance.
- Organizational and managerial innovations, to improve the use of existing technology and resources and hence raise the level of industrial efficiency and productivity.
- Adopting and embracing management techniques like agile/ scrum and lean manufacturing practices can improve the viability of sawmills. This may be the cheapest and easiest strategy to implement in Zimbabwe.

THE END!!

