

# Residual Value Analysis for Selected Technologies

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# Residual Value

**Residual Value** is the value of **raw material** as determined by estimating the **value of the products produced** and subtracting the **manufacturing costs**

**Value of final product(s)**

**- Manufacturing cost**

**= Residual Value of Raw Material**

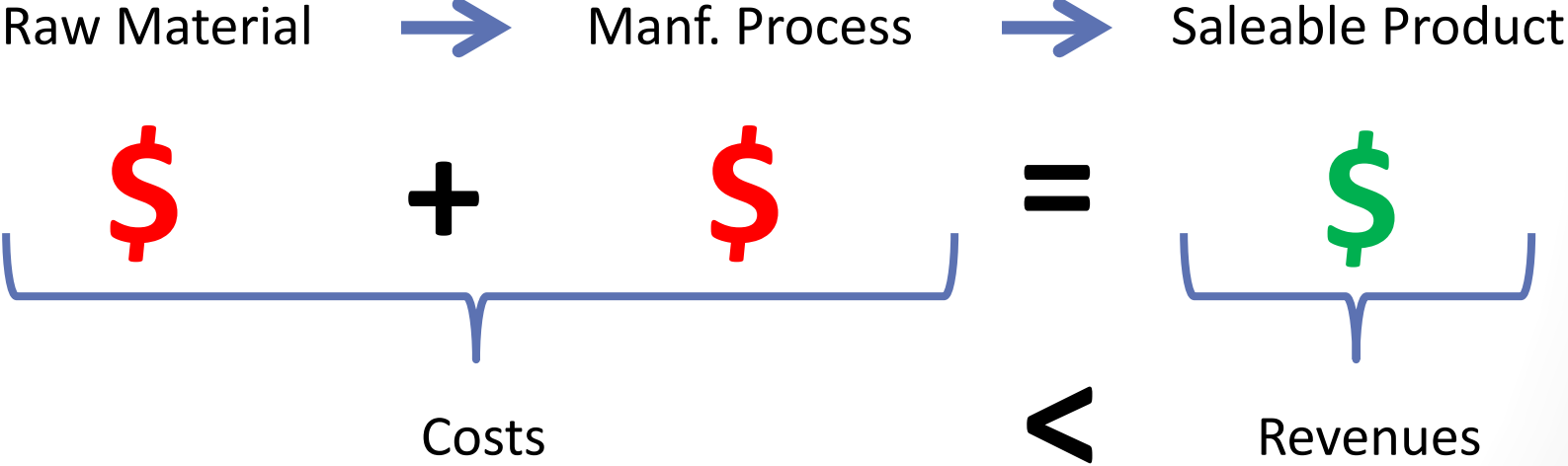
Also known as:

- Return-To-Log/Fiber
- Break-Even Delivered Raw Material Cost

# Residual Value



# Return-to-Log/Fiber



# Return-to-Log/Fiber

$$\begin{array}{ccccc} \text{Saleable} & & \text{Manf.} & & \text{Break-Even} \\ \text{Product} & & \text{Process} & & \text{Raw Material} \\ \text{Value} & & \text{Cost} & & \text{Price} \\ \\ \$ & - & \$ & = & \$ \end{array}$$

\*Sales values and costs expressed on a \$ per unit basis

# Residual Value - Various Technologies

	Lumber	Whole Log Pulp Chips	Shavings	Post and Pole	Firewood	Briquettes	Pellets	Biomass (CHP)
Sales Value f.o.b. plant, (\$/BDT)								
Less Conv. Cost (\$/BDT)								
Residual Value (\$/BDT)								



# Forest Products Units of Measurement

1. Many different units of measurement are used in the technologies I analyzed for Residual Value
  - Board feet
  - Tons
  - Cubic feet
  - Linear feet
  - Cords
2. Different units make comparison of economics difficult
3. I converted all units of measurement to **Bone Dry Tons**

# Bone Dry Ton



Assume these logs weigh 25 tons



50% of weight  
is water



50% of weight is  
wood.

Therefore:

**12.5 Bone Dry Tons**



# Residual Value - Various Technologies

	Lumber	Whole Log Pulp Chips	Shavings	Post and Pole	Firewood	Briquettes	Pellets	Biomass (CHP)
Sales Value f.o.b. plant, (\$/BDT)	175	76	178	195	95	167	160	107
Less Conv. Cost (\$/BDT)	76	19	126	144	60	126	122	72
<b>Residual Value (\$/BDT)</b>	<b>99</b>	<b>56</b>	<b>52</b>	<b>51</b>	<b>35</b>	<b>41</b>	<b>38</b>	<b>35</b>

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BDT/Year (BDT, 000's)	137	84	10	5	9	10	47	121
Cap EX (\$ millions)	40	2.5	2.5	1.5	0.5	2.0	10	54

# Anchor Business and “Co-located” Businesses

- The presence of a sawmill(s) is critical in developing/maintaining a forest products industry infrastructure
- Sawmilling’s high residual value allows for logs to “pay their way” out of the woods
- Also provides monetary return to the landowner that allows for cost effective forest management
- Can “subsidize” cost of harvesting small diameter trees (“come along” volume and tops of sawlogs)
- Provides by-products that can be used by co-located businesses
- By-products are often already in a form (size and shape) that can be readily used (pellets, briquettes)