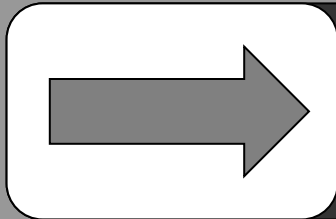


Tuesday November 5th 2013.



Coldstream Consulting



slide to unlock

LCA methodology



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Goal & Scope

State the;

- Intended application
- Reasons for carrying out the study
- Intended audience
- Intended for comparative assertions

All information related to modeling that is to be carried out, specifically the;

- Functions and functional unit
- Product system and system boundaries
- Allocation procedures



Life Cycle Assessment

Guiding ISO Standards

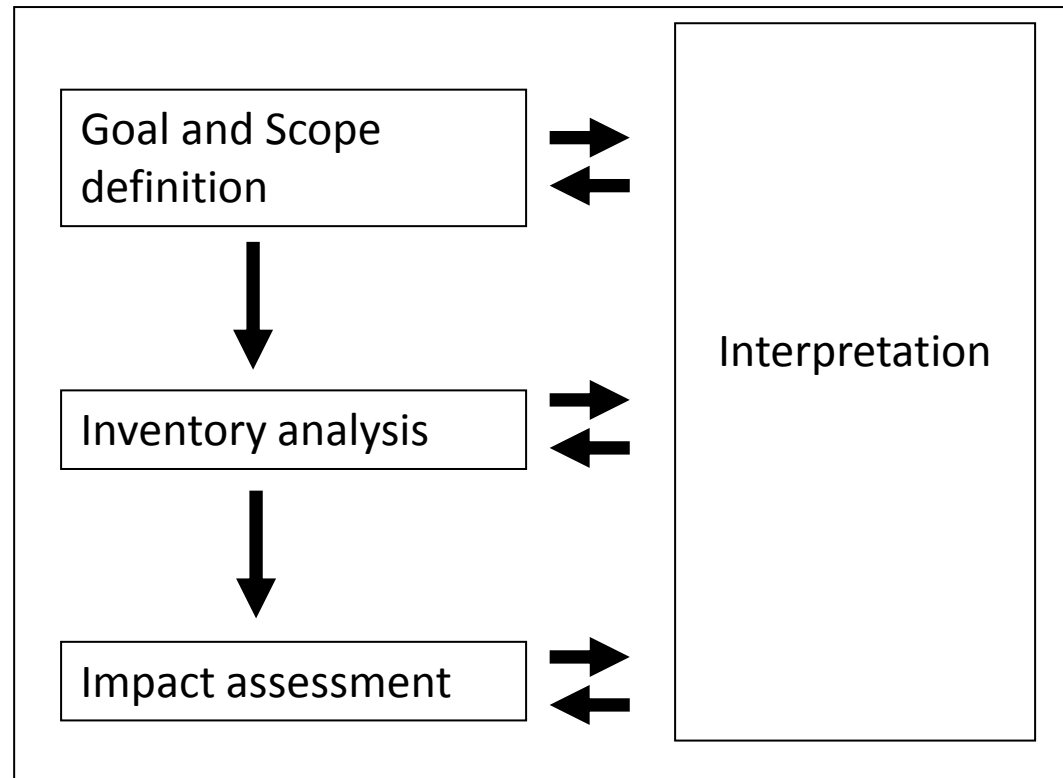
- **ISO 14040:2006**, Environmental management – Life cycle assessment – **Principles and framework**
- **ISO 14044:2006**; Environmental management – Life cycle assessment- **Requirements and guidelines**

ISO LCA Methodological Framework

Defining and planning the study to be carried out on the system in question.

Measuring physical inputs and outputs from the system in question.

Assigning an environmental significance to inputs and outputs from the system in question.

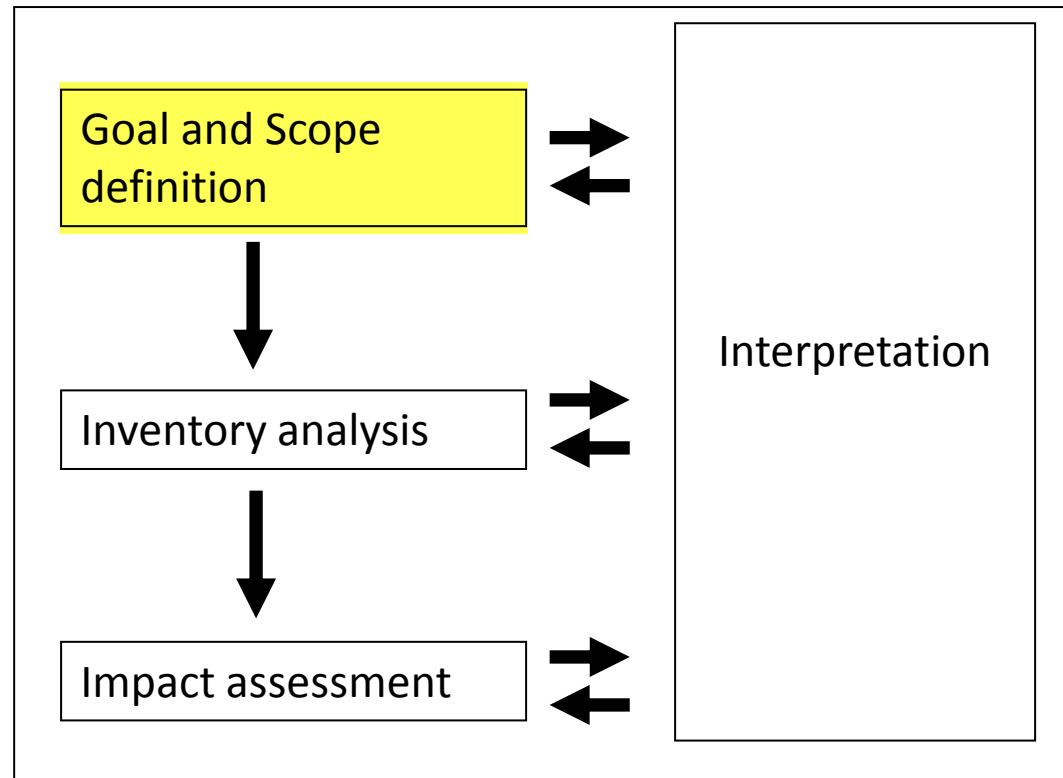


Was the study completed in accordance with international standards?

Is the study consistent to the defined system and study plan?

ISO LCA Methodological Framework

Defining and planning the study to be carried out on the system in question.



UNEP/SETAC Sustainability Framework



Goal & Scope

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All information related to modeling that is to be carried out, specifically the;

- Functions and functional unit
- Product system and system boundaries
- Allocation procedures
- Impact categories selected and methodology of impact assessment
- Value choices and optional elements
- Interpretation to be used
- Data requirements
- Assumptions
- Limitations
- Data quality requirements
- Type of critical review, if any
- Type and format of the report required for the study

Goal & Scope

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Goal

- Intended Application
 - Where will you put the information from this LCA study to use?
- Examples
 - Support product development
 - Strategic planning
 - Marketing
 - Policy making

Goal

- Reasons for carrying out the study
 - Describe objectives and motivations that provide context to the need for the study
- Examples
 - Pressure from regional regulations
 - Meet industry standards
 - Company culture

Goal

- Intended audience

- Identify groups you are preparing the study to be understood and used by
- Consideration in details and communication documents

Examples of potential audiences of an LCA study;

- Product developers,
- Management,
- Customers, and
- Researchers



Goal

- Intended for comparative assertions
 - Do you want to make environmental claims regarding competing products that serve the same functions? If so,
 - Research what has been done
 - check to see if the product(s) you plan on studying have pre-existing product category rules (PCRs)



Goal & Scope

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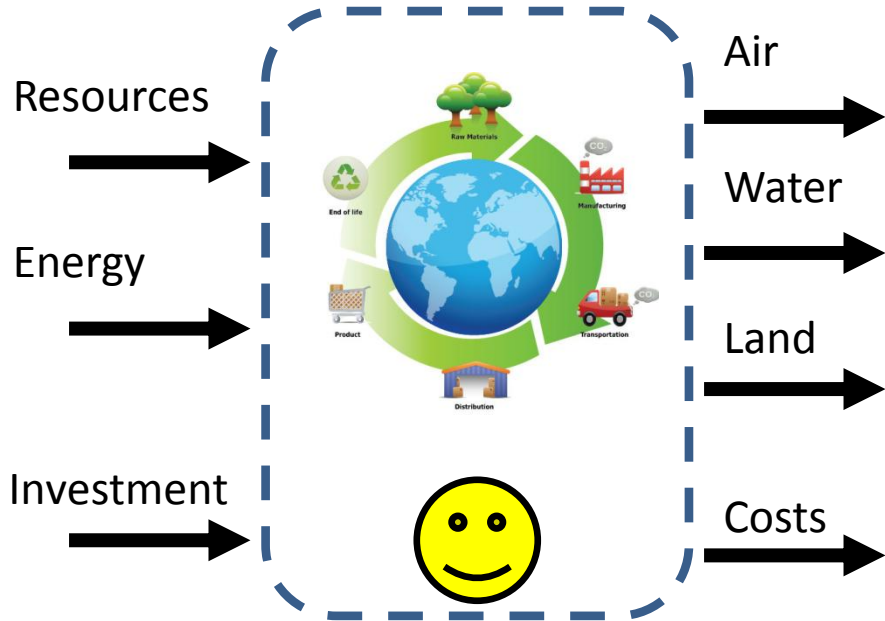
- Functions and functional unit
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UNEP/SETAC Sustainability Framework



Inventory Analysis

Impact Assessment



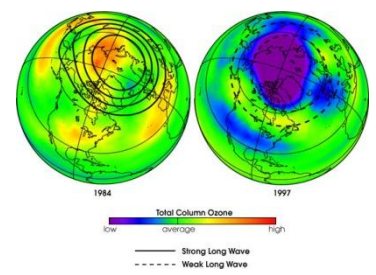
kg CO₂ eq



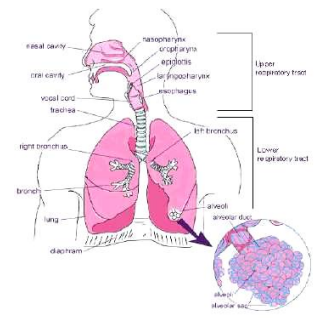
NPV CAD\$



kg O₃ eq



kg CFC-11 eq



kg PM₁₀ eq



kg SO₂ eq



kg N eq

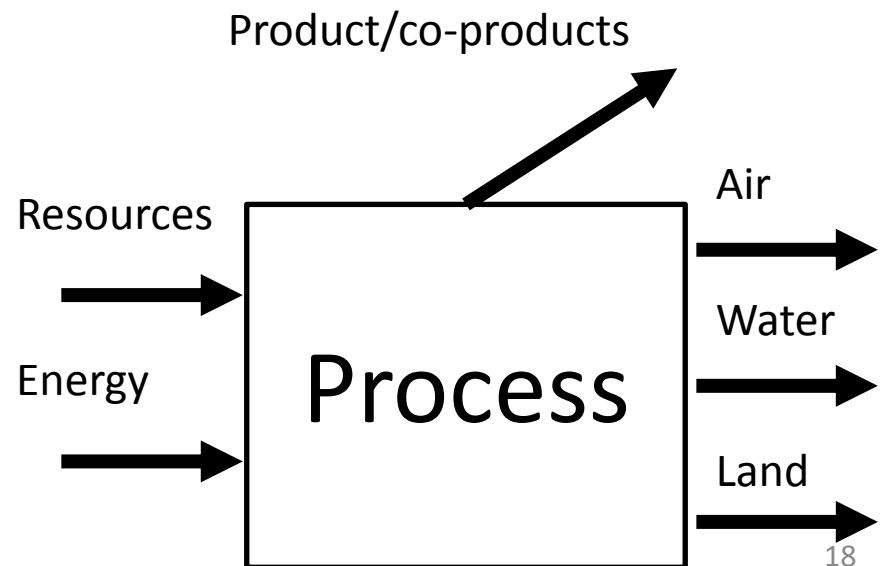
Scope

- **Functions and Functional unit**
 - What performance characteristics (function) do you want to assess?
 - What, how much, and how long is the function provided
- **Examples**
 - Hand dryer LCA study
 - per 260,000 pairs of hands dried
 - Milk Production LCA study
 - per 1000kg of energy corrected milk leaving farm gate
 - Transportation vehicle LCA study
 - per tonne*km travelled in a year
 - per tonne*km travelled in vehicle lifetime
 - Wall Structure
 - per m² of wall constructed to building code with 60 year service life

What is needed?

Scope

- Product system and system boundaries
 - Draw a process flow diagram of unit processes
 - Focus on what is required to meet functional unit
 - How far upstream and downstream are you considering?
 - Cradle-to-gate?
 - Cradle-to-grave?



Process Flow Diagram

Raw Material Supply

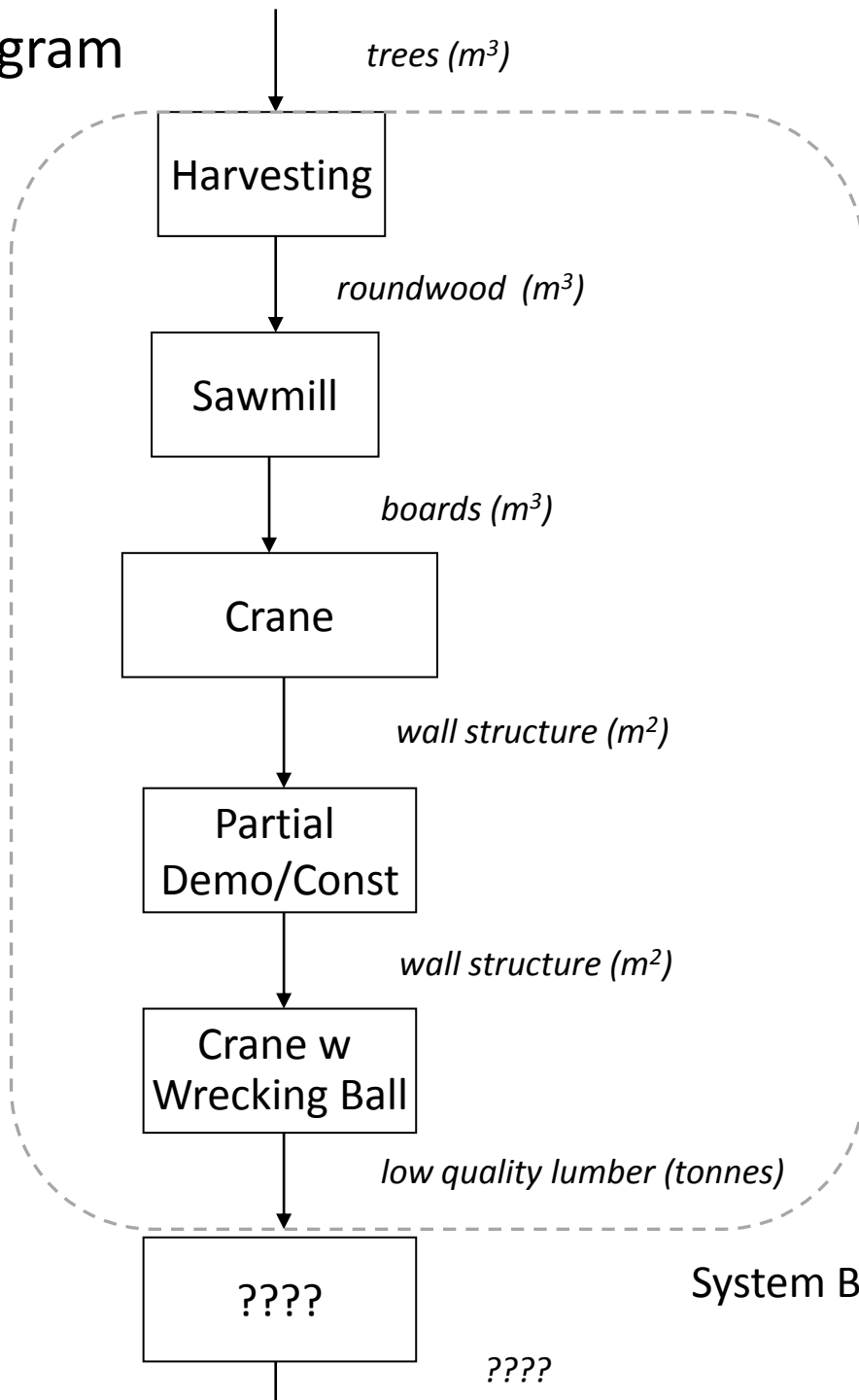
Manufacturing

Assembly

Maintenance

Deconstruction/Demolition

Recycling/Reuse/Disposal



System Boundary

?????

Process Flow Diagram

Raw Material Supply

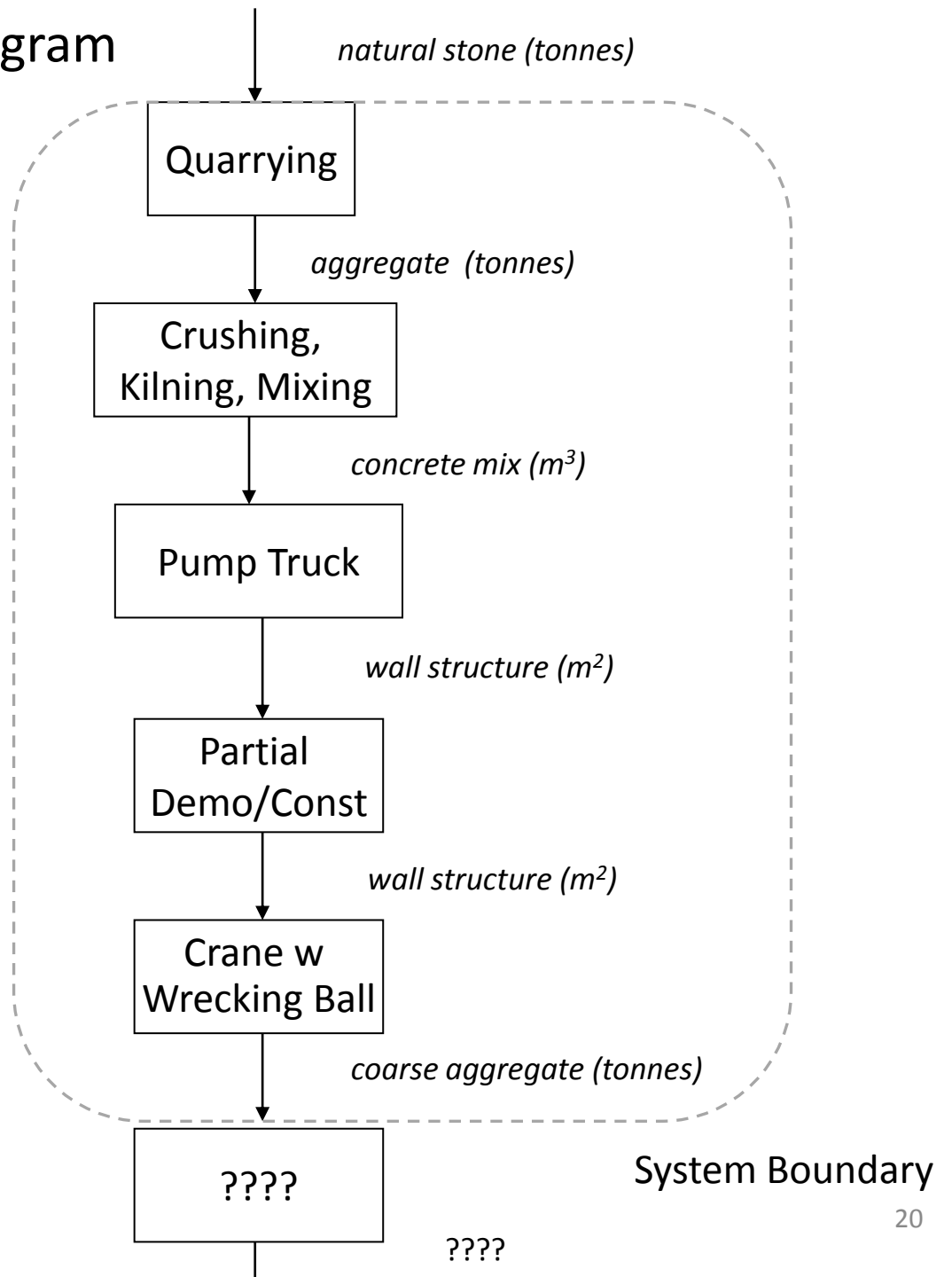
Manufacturing

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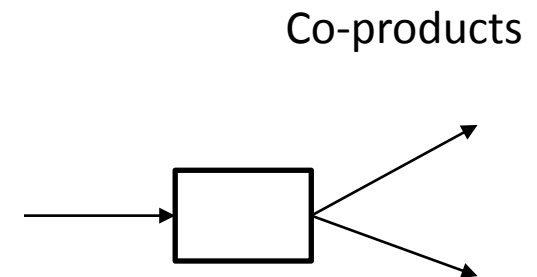
Deconstruction/Demolition

Recycling/Reuse/Disposal

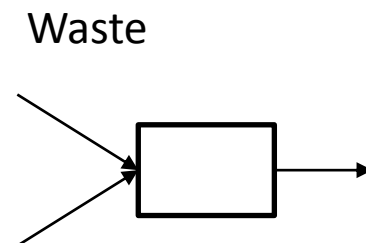


Scope

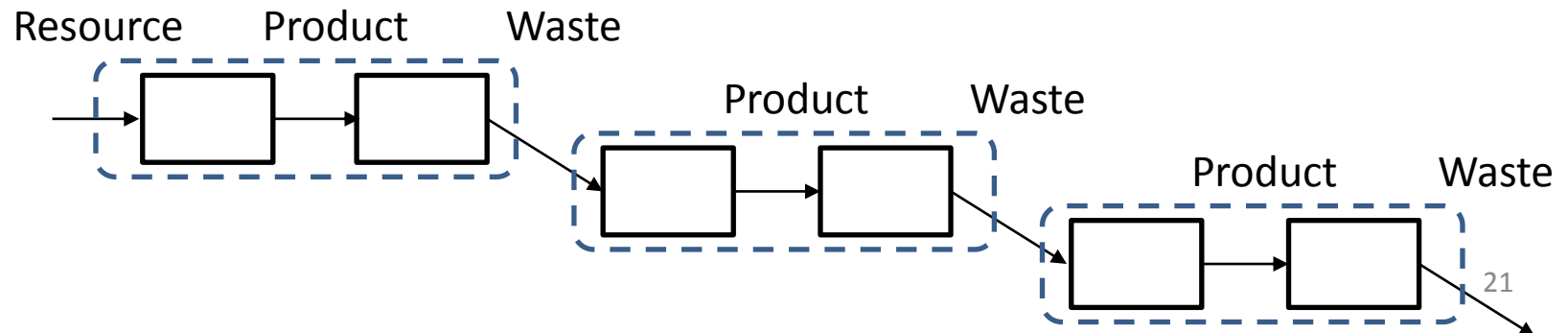
- Allocation procedures
 - How to divide flows when they are shared by processes.
 - Three allocation scenarios to be aware of;
 1. A process outputs multiple products



2. A waste treatment process has multiple inputs



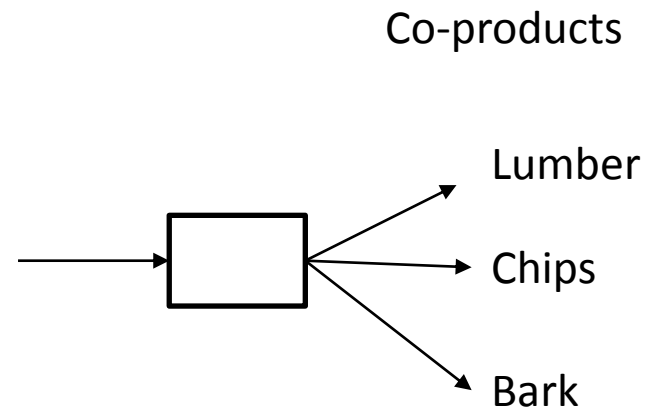
3. Open loop recycling



Scope

- Allocation procedures
 - How to divide flows when they are shared by processes.
 - Three allocation scenarios to be aware of;
 1. A process outputs multiple products

Product	Allocation Procedure	
	Mass	Economic
Lumber	50%	80%
Chips	30%	15%
Bark	20%	5%



Production of lumber would look a lot almost twice as good if mass allocation were used instead of economic.

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