

Resource efficiency: cut costs in plastics processing

Workbook 3: supervising resource efficiency

Workshop objectives

- To begin a structured review of waste quantities and costs
- To learn how to map a process using process flow sheets
- To provide a toolkit to help you reduce costs and improve environmental performance
- To train you to train others

Waste is anything that does not add value to the product

Business pressures for resource efficiency

- Waste costs real money
- The true cost of waste is hidden
- Resource efficiency is good business
- Legislation and the legal consequences
- Our reputation and customer pressure

Words for waste

- Conveyor loss, customer returns ...
- Defects, dirty solvent, dregs, dross, dust ...
- Obsolete stock, offcuts, out-of-spec, overfill ...
- Reel ends, regrind, rejects, rework, rubbish ...
- Scrap, second quality, sprues, sweepings ...
- Usage allowance, usage variance ...
- Workaway, yield loss ...

+ more that are being invented all the time

Where to find waste

- Incoming materials
- Stores (raw materials, parts, final products)
- Production
- Support services
- Energy
- Water
- Other

What to do with waste

Eliminate it

Best and cheapest

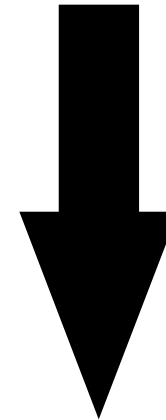
Reduce it

Re-use it

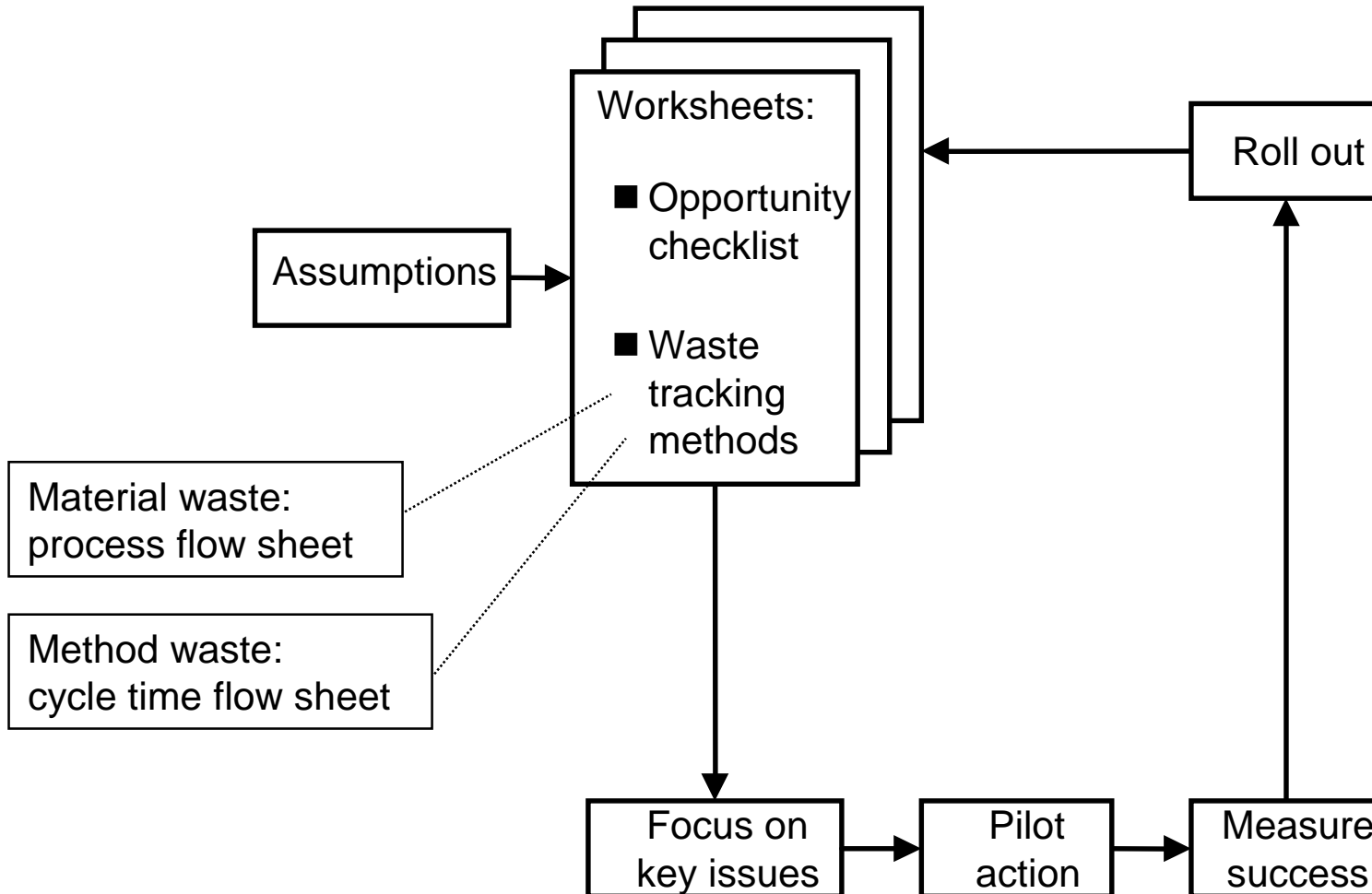
Recycle it

Dispose of it

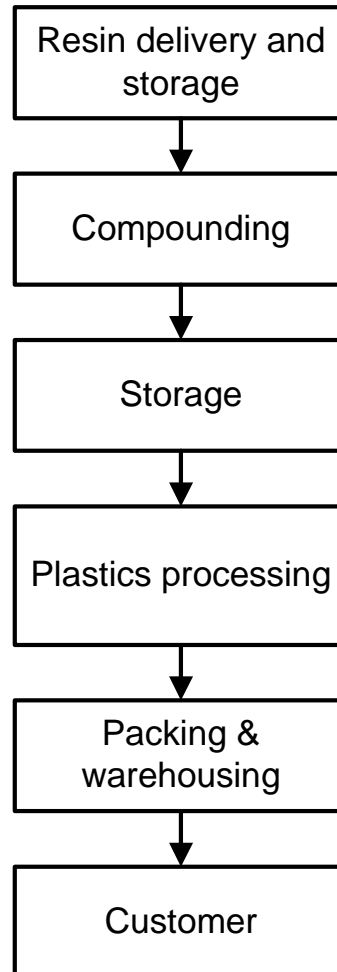
Worst and most costly



Tools for resource efficiency



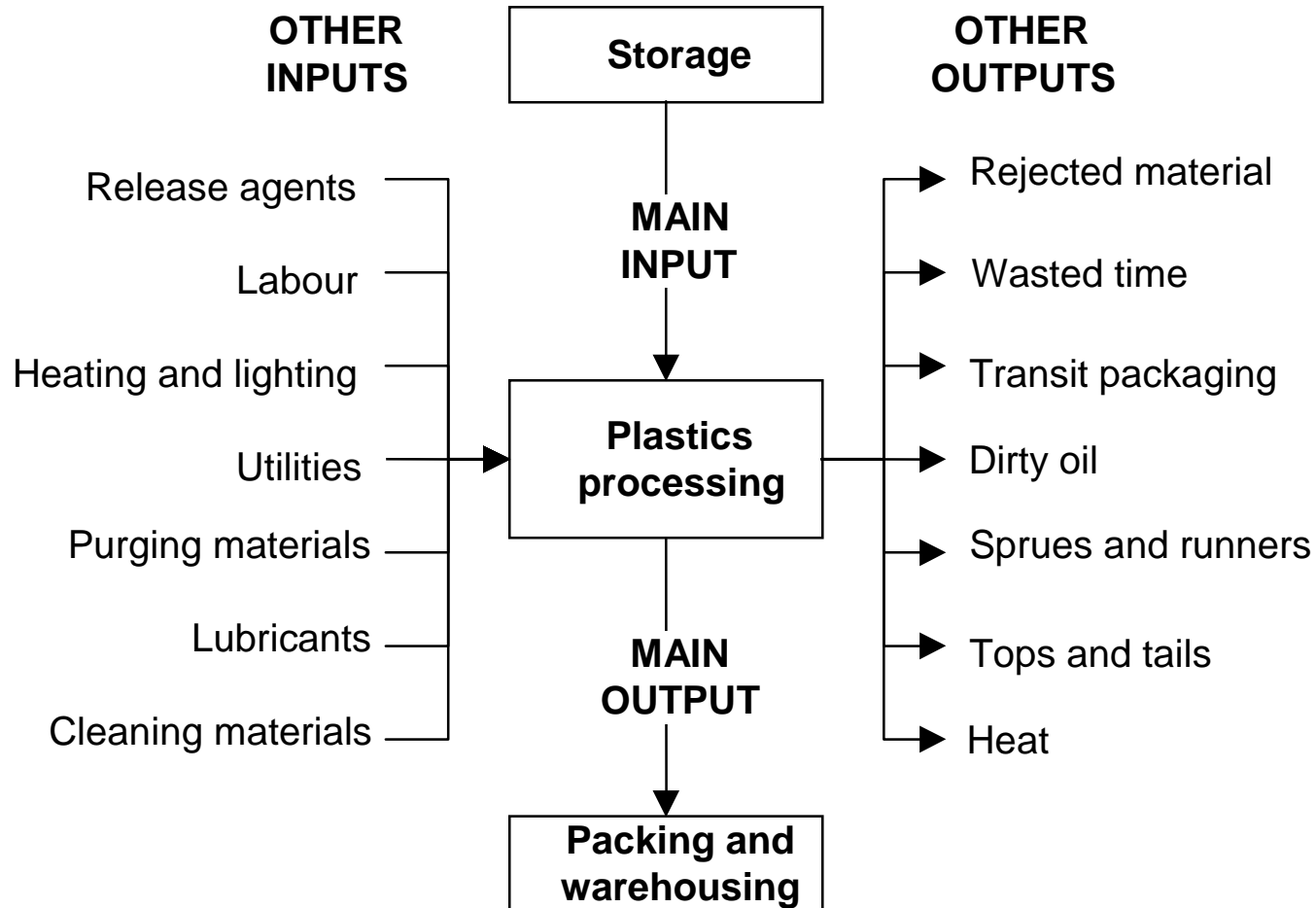
Material waste: process flow sheet



Developing a process flow sheet

Use the material and samples provided to generate a process flow sheet

Adding detail to the process flow sheet



Adding detail to your flow sheet

Use the material and samples provided to generate a detailed element of your process flow sheet

Extending the process flow sheet

Opportunities for saving money: major sources of waste				
Name:		Date:		Sheet: of
Process description:				
Process or activity	Type of waste	Estimated amount of waste produced per week/month/year	Estimated cost including disposal, raw materials, purchase costs, utilities, added value per week/month/year	Current waste reduction activities
Net annual cost				

Method waste

Activity	Add value	Add cost (waste)
Moving		✓
Storing		✓
Plastics processing	✓	
Counting		✓
Inspecting		✓
Scrapping		✓
Reworking		✓
Assembling	✓	
Sorting		✓

Real cycle times

Use the form provided to determine your method waste efficiency ratio

Method waste efficiency ratio (%) =

$$\frac{\text{time spent adding value}}{\text{time spent adding cost}}$$

How to reduce material waste

Take action in the following areas:

- Material management
- Waste management
- Energy management
- Water management
- Packaging management
- Other measures

How to reduce method waste

- Reduce stocks and work in progress
- Improve worker involvement and quality
- Increase flexibility and productivity
- Choose the best machinery
- Reduce lead times dramatically
- Add value not cost
- Improve workflow

Five steps for quick savings

1. Collect the information
2. Identify the best project
3. Obtain management approval for the project
4. Plan the project
5. Make the first savings