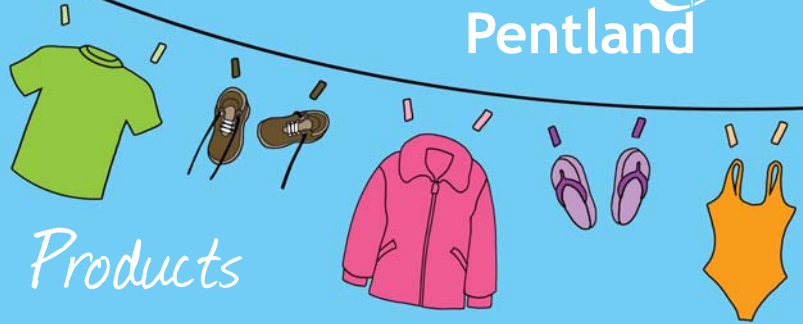




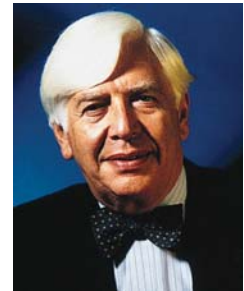
Responsible Products

Concepts and Consequences



Responsible Products

Concepts and Consequences



Message from the Chairman

Consideration for people and the natural environment have always been at the forefront of Pentland's priorities as a business.

As a signatory to the UN Global Compact, the Pentland Group is committed to implementing all 10 UN Global Compact Principles regarding human rights, labour rights, the environment and anti-corruption.

Our *Responsible Products - Concepts and Consequences* booklet acts as our 2007 Communication on Progress (COP), and demonstrates our commitment to implementing the 3 Environmental Principles.

We recognise that understanding the environmental impacts of our products is an important step in producing more responsible products.

This booklet has been produced as a resource for Pentland employees and business partners. It provides information on the life cycle of typical products we produce, and provides ideas for making improvements at every stage in a product's life, from concept and design, through to disposal. It is part of an ongoing programme of guidance, support and training to our product teams.

R Stephen Rubin
Chairman, Pentland Group plc



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- 3 **The life cycle of a product . . .**
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This booklet is for general guidance only. There will always be exceptions, and it is therefore the reader's responsibility to check all local and national laws, rules, regulations and other requirements applicable to them. Pentland Group plc shall not be responsible for the results of any actions (or omissions) taken on the basis of information provided in this booklet.

Responsible Products

Concepts and Consequences

"Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs."

Our Common Future. Report by the World Commission on Environment and Development 1987

"We are currently using the planet's resources far faster than they can be renewed. On current projections, this means that as a whole, humanity will need at least two planets' worth of natural resources by 2050."

WWF's Living Planet Report 2006

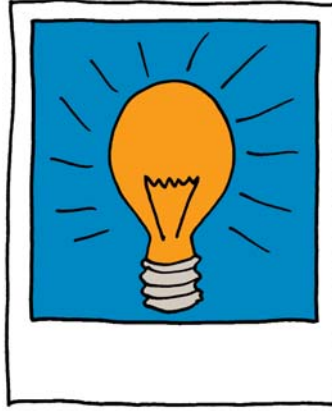
Pentland brands are committed to designing and manufacturing our products with consideration for the environment, moving towards greater use of suitable materials and processes.

The aim of this booklet is to give some principles, ideas and practical tools to help improve the environmental impacts of the products we sell.

All consumer goods have impacts on the environment. Raw materials, energy and water are used to manufacture and package products; they are then transported to their place of use, before ending up as waste.

Responsible products can minimise the environmental impacts at each stage of a product's life cycle.





Innovation lies at the heart of sustainability

You have an opportunity to apply your creativity and passion to make a difference

Motivated individuals can achieve truly remarkable things



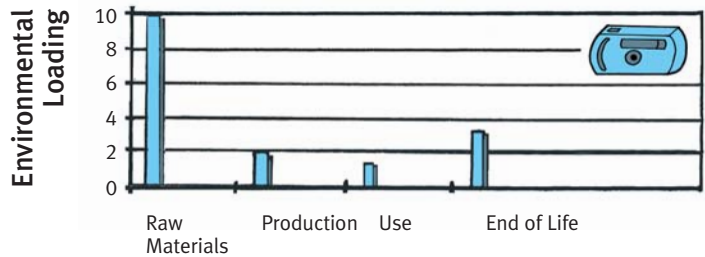
The Life Cycle of a Product . . .

. . . its journey from design concept, to choice and production of raw materials, to manufacture, use and eventual end of life disposal.

Examining the life cycle of a product helps us identify the opportunities to make a difference and to produce a product with less impact on the environment.

The first step is to identify where the demands on the environment are greatest. For example, the environmental impacts of a single use product tend to be different from those of a more durable product intended to be reused many times (see diagrams below).

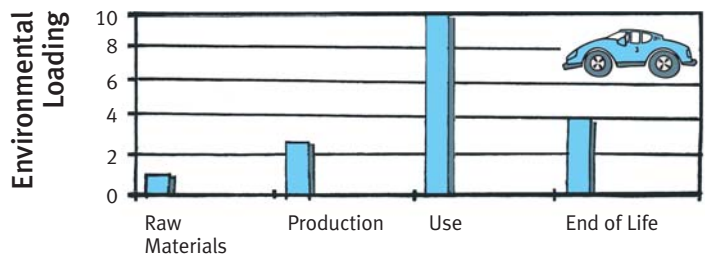
Typical short-lived, material intensive product (e.g. a disposable camera)



Neilson, Ralf. Building Sustainable Enterprises, Five Winds International, 2002

The greatest environmental impact for a short-lived product is in the materials used. This impact could be lessened by reducing the amount of material, by using recycled or recyclable materials, or by extending the product's life.

Typical long-lived, energy and resource consuming product (e.g. car, domestic appliance)



Neilson, Ralf. Building Sustainable Enterprises, Five Winds International, 2002

The greatest environmental impact from the long-life product arises from the energy and resources needed for it to be functional. So any design improvements that reduce the energy needed to use the product would have the most environmental benefit.

Simple life cycle analyses of typical products made by Pentland brands

So what are the major environmental impacts of our footwear and clothing products?

The next few pages illustrate the cradle to grave journey of some typical products from raw materials, manufacturing, packaging, transportation, use and disposal.

COTTON
T-SHIRT



The main life cycle impact is at the **use** stage, i.e. washing and drying.

LEATHER/RUBBER
SHOES



The main life cycle impacts arise from the **raw materials** (chemicals and processes used to tan leather) and **manufacturing** stages (energy used to operate machinery and the chemicals used in shoe production) and **disposal**.

POLYESTER
FLEECE JACKET



The main life cycle impact is at the **use** stage, i.e. washing and drying.

PU/EVA
FLIP FLOPS





The main life cycle impacts are in the **raw materials** (manufacturing PU and EVA) and **disposal**.

NYLON/LYCRA
SWIMSUIT



The main life cycle impacts are in the **raw materials**, **manufacturing** and **disposal** stages.

Opportunities to minimise environmental impacts throughout the product life cycle

PRODUCTION STAGE	ISSUES	POSSIBLE SOLUTIONS
RAW MATERIALS 	Extracting and processing raw materials: <ul style="list-style-type: none">🌐 uses natural resources🌐 uses energy🌐 causes pollution	<ul style="list-style-type: none">⇒ Optimise/reduce use of materials⇒ Use recycled materials⇒ Use renewable or recyclable materials⇒ Reduce the number of different raw materials⇒ Use materials that have been tested for restricted substances⇒ Use local suppliers and local materials
MANUFACTURING 	Manufacturing consumes energy and causes pollution	<ul style="list-style-type: none">⇒ Design products that are easy to disassemble into different components for repair and recycling⇒ Locate suppliers near to main manufacturer⇒ Use factories that have environmental credentials⇒ Use factories that have been reviewed against Pentland Group Business Standards Policies

PACKAGING



Packaging accounts for over half the volume of household waste in developed countries

- ⇒ Reduce the amount and volume of packaging from manufacturing to distribution to point of sale
- ⇒ Use recycled and recyclable materials
- ⇒ If possible, use only one raw material for packaging
- ⇒ Minimise printing to allow for re-use

TRANSPORTATION



Products often travel thousands of miles before being sold, increasing their carbon footprint

- ⇒ Avoid air freight
- ⇒ Avoid or reduce air travel by using video conferencing or similar electronic systems
- ⇒ Optimise loads
- ⇒ Choose manufacturing sites according to the product's final market
- ⇒ Clear and simple designs minimise multiple sampling
- ⇒ Use Pentland Asia since they already understand our brands' requirements

USE



Products designed to be replaced frequently tend to be hard to repair, which generates waste

Most products need to be washed or cleaned, using energy and causing air and water pollution

- ⇒ Design products that are durable, safe and easy to maintain or repair
- ⇒ Stipulate cool wash if possible. Avoid recommending dry cleaning and tumble drying

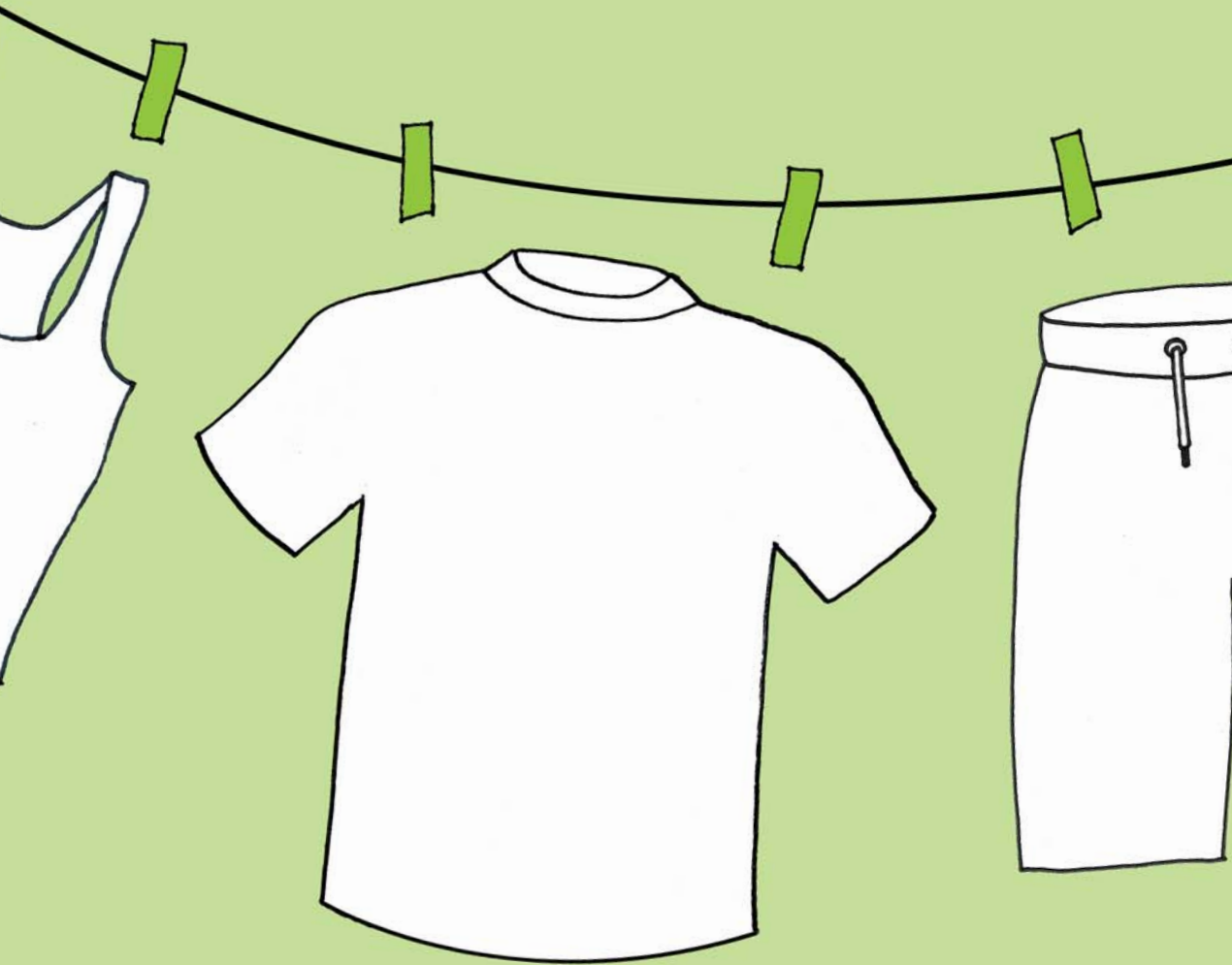
DISPOSAL



Multiple components and materials make disassembly and recycling complex, costly and sometimes impossible

- ⇒ Develop more reusable or recyclable products and components
- ⇒ Give instructions for responsible disposal

Life Cycle of a Cotton T-shirt



LIFE CYCLE OF A T-SHIRT



Growing and Harvesting Cotton



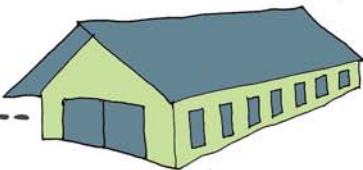
Ginning - Separation of Lint and Seed



Use - Washing and Drying



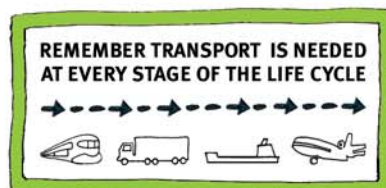
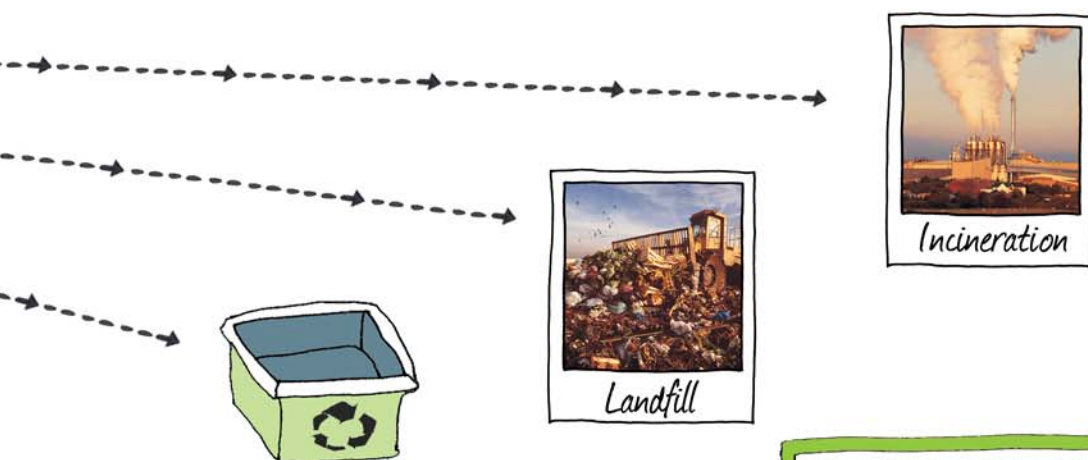
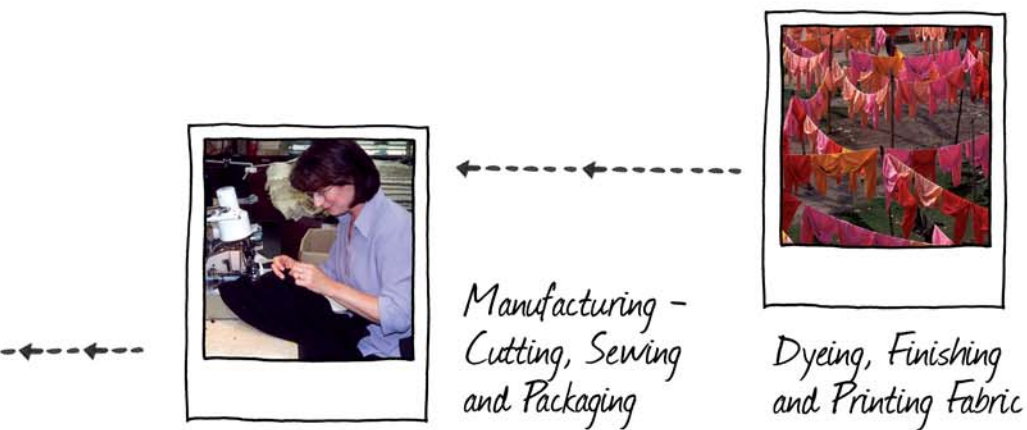
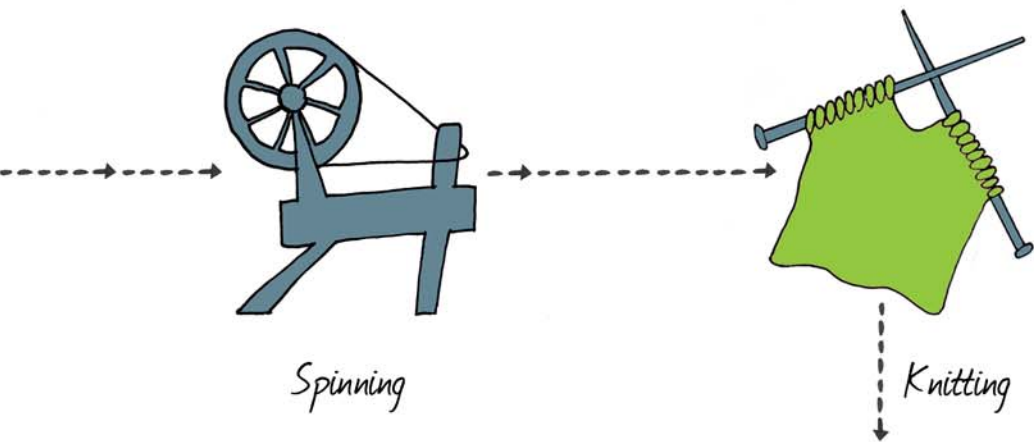
Retail



Warehouses



Reuse



KEY
MATERIAL:
COTTON

Life Cycle of a Cotton T-shirt



PROCESS

MAJOR IMPACTS

POTENTIAL AREAS FOR IMPROVEMENT

GROWING AND HARVESTING

- ☹ Intensive use of agro-chemicals (pesticides, herbicides and fertilisers) leads to environmental pollution, reduces soil fertility over time and exposes workers to harmful chemicals
- ☹ Highly dangerous chemical defoliants are used to aid mechanical harvesting, some of which are known to cause birth defects
- ☹ Adverse impact on land fertility and biodiversity from monoculture production
- ☹ Excessive use of water
- ☹ Forced/ bonded/ child labour issues in some developing countries

- ⇒ Explore alternative materials e.g. hemp, bamboo
- ⇒ Use organic or recycled cotton
- ⇒ Organic cotton is produced without use of synthetic chemicals and toxins. There are a number of certified schemes for organic cotton e.g. Fairtrade cotton, Integrated Crop Management, Agrocet. Further developments in the industry are expected
- ⇒ Recycled cotton, such as Eco Fibre, is made from cotton recovered from the manufacturing process
- ⇒ Improve environmental management
- ⇒ Manage working conditions

GINNING AND SPINNING

- ☹ Production and disposal of waste
- ☹ Exposure to airborne fibres can cause respiratory diseases
- ☹ Energy use

- ⇒ Recycle cotton waste
- ⇒ Manage working conditions
- ⇒ Manage energy use
- ⇒ Use renewable energy

KNITTING

- ☹ Energy consumption from machinery operation
- ☹ Exposure to airborne fibres causes respiratory diseases

- ⇒ Use energy efficient processes
- ⇒ Manage energy use
- ⇒ Use renewable energy
- ⇒ Manage working conditions

DYEING, FINISHING AND PRINTING

- ⚠ Use and disposal of toxic chemicals used in the dyeing process
 - ⇒ Use organically produced cotton (though coloured dyes can still have a harmful impact on the environment)
- ⚠ Contaminated effluent produced as a waste product
 - ⇒ Consider using natural coloured cotton
- ⚠ Printing ink and embossing can reduce ability to recycle
 - ⇒ Minimise use of printing
 - ⇒ Avoid embossing
- ⚠ Some polycotton is treated with formaldehyde for durability, which is toxic
 - ⇒ Avoid use of formaldehyde in the work place
- ⚠ High water consumption
 - ⇒ Reduce and manage water consumption

MANUFACTURE OF GARMENT

- ⚠ Energy consumption from machinery operation
 - ⇒ Use energy efficient processes
 - ⇒ Manage energy use
 - ⇒ Use renewable energy
- ⚠ Poor labour conditions and long working hours can have health impacts
 - ⇒ Manage working conditions in accordance with Pentland's Business Standards

PACKAGING AND LABELLING

- ⚠ Labels made from precious resources such as paper or plastic
 - ⇒ Reduce labels
- ⚠ Usually packaged in single plastic bags which are disposed of by the retailer or consumer
 - ⇒ Reduce weight of plastic
 - ⇒ Consider multiple garments per bag
 - ⇒ Use recycled plastic

USE

- ⚠ Washing and drying uses water and energy
 - Make recommendations:
 - ⇒ Lower temperature wash or hand wash
 - ⇒ Avoid biological powders
 - ⇒ Avoid tumble dry

DISPOSAL

- ⚠ Polycotton is not currently recyclable because it is a mixed fibre fabric
 - ⇒ Avoid using polycotton
- ⚠ Cotton is a biodegradable and recyclable product
 - Make recommendations:
 - ⇒ Donate to charity for reuse
 - ⇒ Reuse as rag for cleaning
 - ⇒ Recycle
- ⚠ Many garments end up in landfill

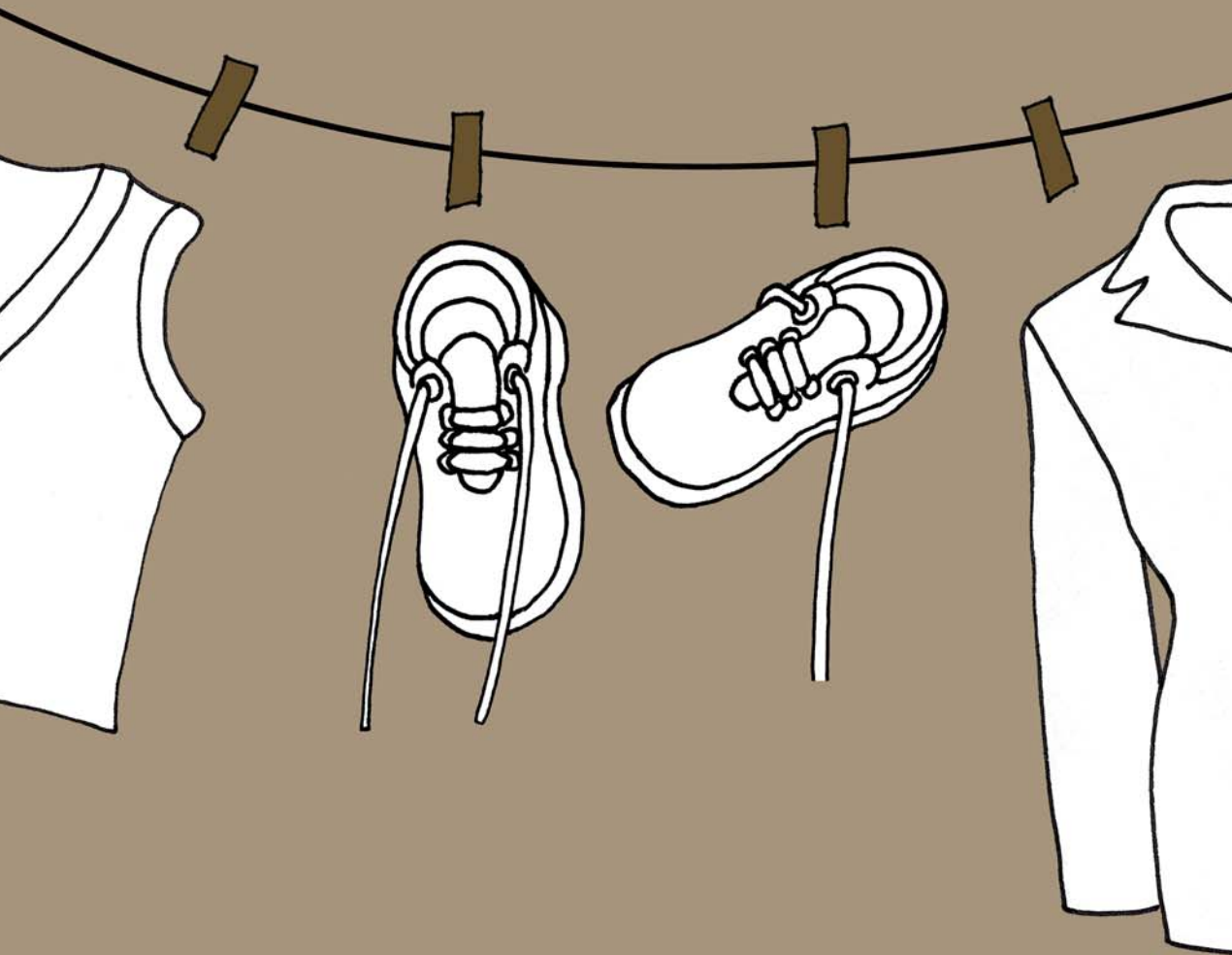


Organic Cotton

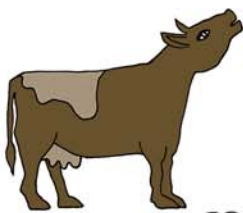
Organic cotton is produced without the use of synthetic chemicals and toxins.

Sourcing certified Fairtrade organic cotton helps to ensure better wages, better working conditions and local sustainability for farmers and workers in developing countries.

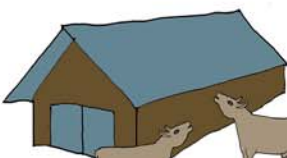
Life Cycle of a Leather / Rubber Shoe



LIFE CYCLE OF A SHOE



Animals

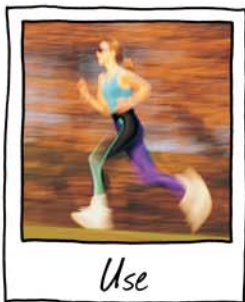


Slaughter House



Tannery production of leather including Dyeing and Finishing

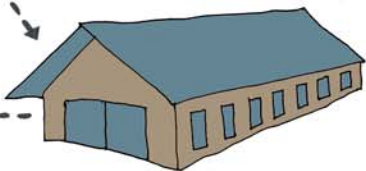
Manufacture - Cutting, Lamination, Sewing, Assembly and Packaging



Use



Retail



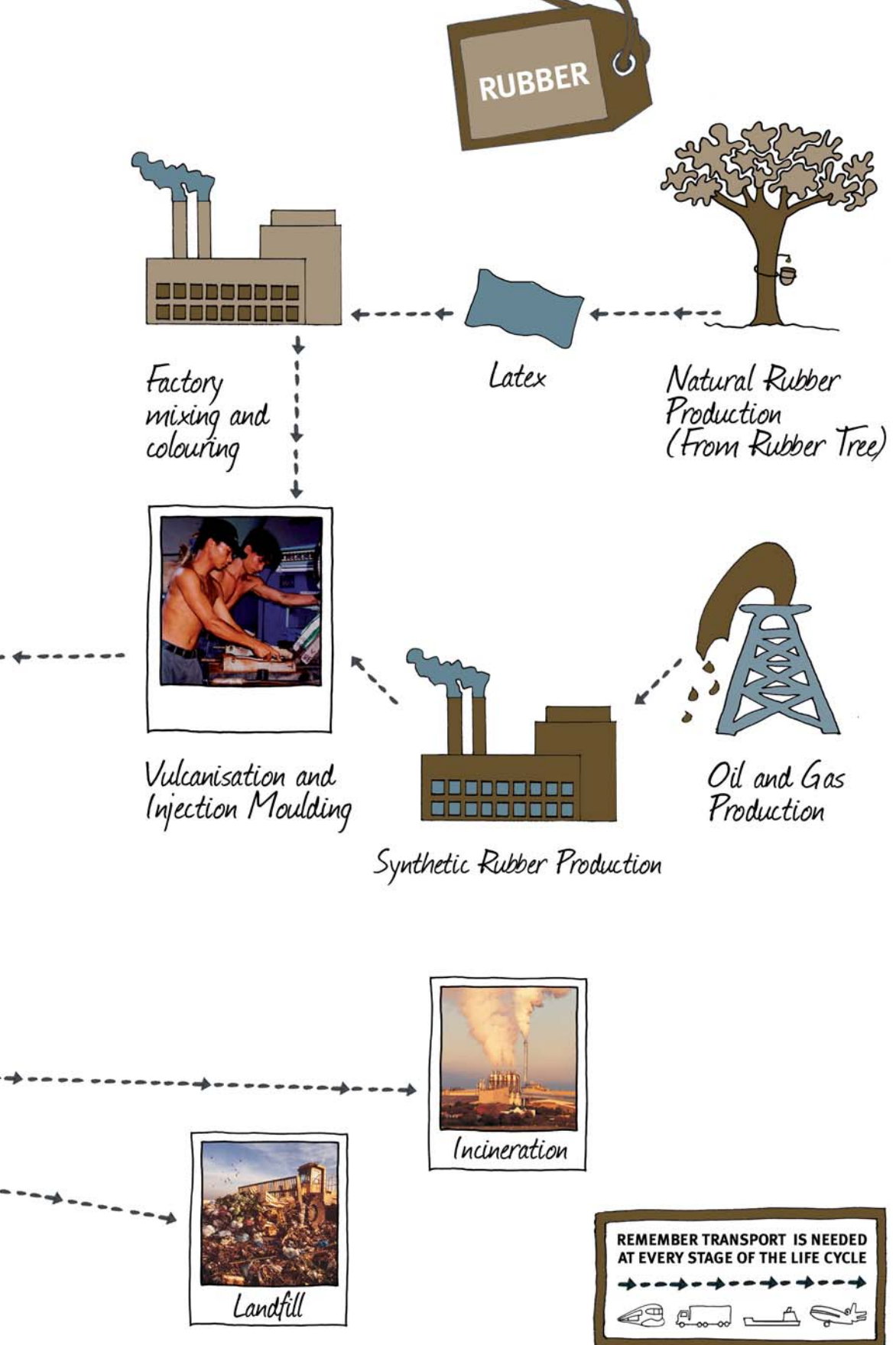
Warehouses



Reuse

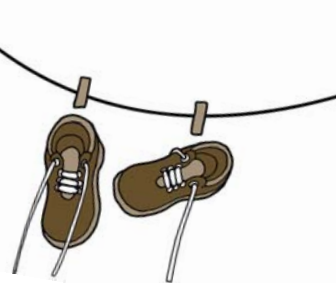


Recycle



KEY
MATERIALS:
**LEATHER &
RUBBER**

Life Cycle of a Leather / Rubber Shoe



PROCESS

MAJOR IMPACTS

POTENTIAL AREAS FOR IMPROVEMENT

LEATHER

ANIMAL

- ⊗ Leather is a by-product of animals reared for food ⇒ Explore alternatives to leather
- ⊗ Meat production is a less efficient use of land for food than crops
- ⊗ Slurry from intensive cattle farming can pollute ground water
- ⊗ Cattle produce methane which is a greenhouse gas

SLAUGHTER HOUSE

- ⊗ Untreated waste water can cause water pollution ⇒ Improve water management
- ⊗ After slaughter and before tanning, hides are stored in fridges with high energy consumption ⇒ Explore alternatives to leather

TANNERY

- ⊗ Many toxic chemicals and metals are used to preserve leather ⇒ Manage working conditions and monitor health of workers
- ⇒ Vegetable based tanning is an alternative but also carries risks such as toxic waste
- ⊗ Untreated waste water can contain both chemicals and solid waste which can pollute water supplies ⇒ Ensure water and waste management adhere to local environmental regulations with documentation
- ⇒ Recycle and treat water for reuse
- ⊗ Production of solid waste from tanneries requires careful disposal ⇒ Use energy efficient processes
- ⊗ Tanning requires significant energy ⇒ Use renewable energy

RUBBER

RUBBER IS SOURCED NATURALLY FROM TREES (40% OF THE MARKET) OR MADE FROM OIL (60% OF THE MARKET).

GROWING NATURAL RUBBER

- ⊗ Clearing forests for rubber plantations can cause soil erosion, loss of soil fertility, loss of diversity and destroy natural eco-systems ⇒ Use recycled vulcanised rubber
- ⇒ Source rubber from well managed small holdings e.g. those with certification from Forest Stewardship Council

SYNTHETIC RUBBER (DERIVED FROM OIL)

- ⊗ Comes from a non-renewable natural resource but can be mechanically recycled
 - ⇒ Use recycled synthetic rubber

RUBBER PROCESSING

- ⊗ Additives such as sulphur and carbon black can pollute air and water
 - ⇒ Manage waste, effluent control and documentation
- ⊗ Energy intensive processes
 - ⇒ Manage working conditions
 - ⇒ Use energy efficient processes
 - ⇒ Use renewable energy

MOULDING

- ⊗ Energy intensive process
 - ⇒ Manage energy use

SHOE PRODUCTION

MANUFACTURE OF SHOES

- ⊗ Energy intensive (drying chamber and vulcanization)
 - ⇒ Use energy efficient processes
 - ⇒ Use renewable energy
- ⊗ Release of solid wastes and VOCs
 - ⇒ Waste management and documentation
 - ⇒ Efficient cutting of leather to minimise waste
 - ⇒ Recycle or reuse waste
- ⊗ Exposure of workers to chemicals and VOCs
 - ⇒ Manage working conditions in accordance with Pentland's Business Standards

PACKAGING AND LABELLING

- ⊗ Shoe boxes are often discarded by consumers
 - ⇒ Reduce packaging materials
 - ⇒ Use recycled content
 - ⇒ Don't use glue or staples
 - ⇒ Design a box that can be reused
 - ⇒ Give suggestions on how to recycle or reuse the shoe box

USE

- ⊗ Shoes are designed with a specific use in mind, but consumers don't always care for shoes appropriately
 - ⊗ Consumers may only keep shoes for a short time
- Make recommendations:
- ⇒ Care instructions to prolong life
 - ⇒ Re-sole/ repair shoes if possible

DISPOSAL

- ⊗ Most shoes end up in landfill
 - ⇒ Design shoes that use a minimum number of raw materials or that are able to be disassembled for recycling
 - ⊗ Some of the chemicals used in manufacturing may leach into ground water
 - ⊗ Shoes made from many different materials are harder to recycle
 - ⊗ Synthetic Rubber and vulcanised rubber can be mechanically recycled for use as shoe soles, roads and sports surfaces etc.
- Make recommendations:
- ⇒ Donate good quality shoes to charity for reuse
 - ⇒ Donate to recycling schemes



Use recycled materials

Innovative recycled materials are being developed all the time. Consider using recycled materials in your products, packaging and labelling.

25 recycled PET bottles can be used to make one polyester fleece jacket.

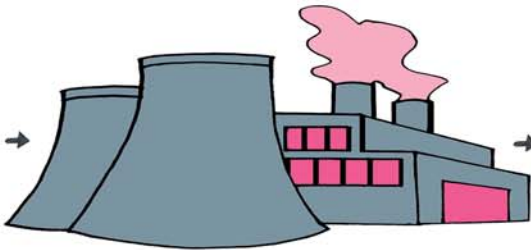
Life Cycle of a Polyester Fleece Jacket



LIFE CYCLE OF A FLEECE JACKET



Oil & Gas Production



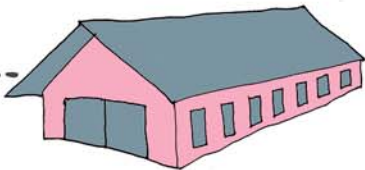
Manufacture PET (Polyethylene terephthalate)
Production of PET plastic sheeting from the liquid



Use - Washing and Drying



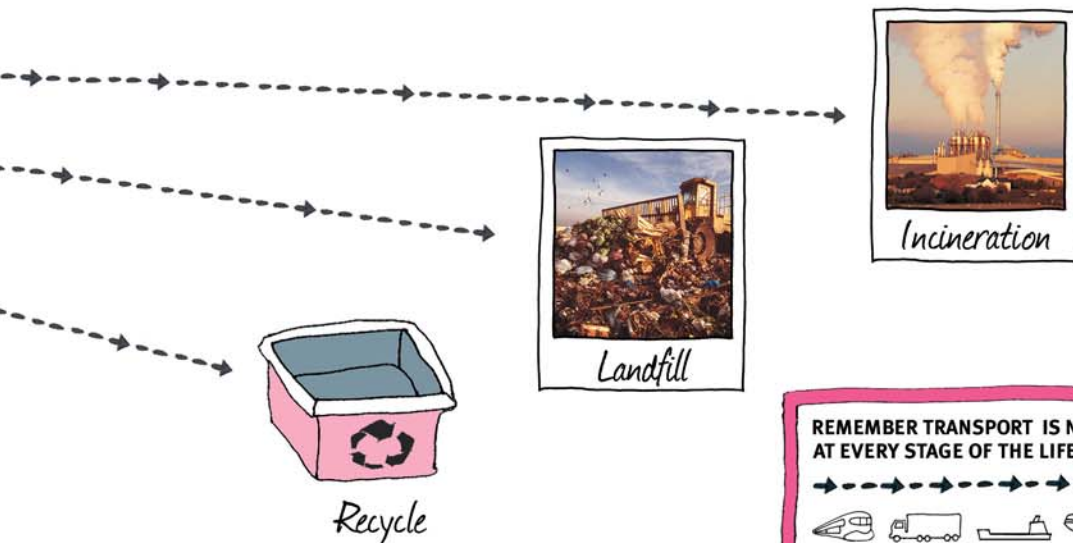
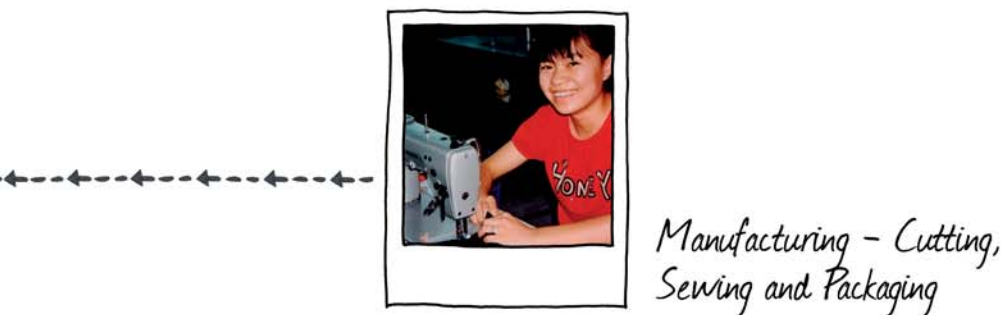
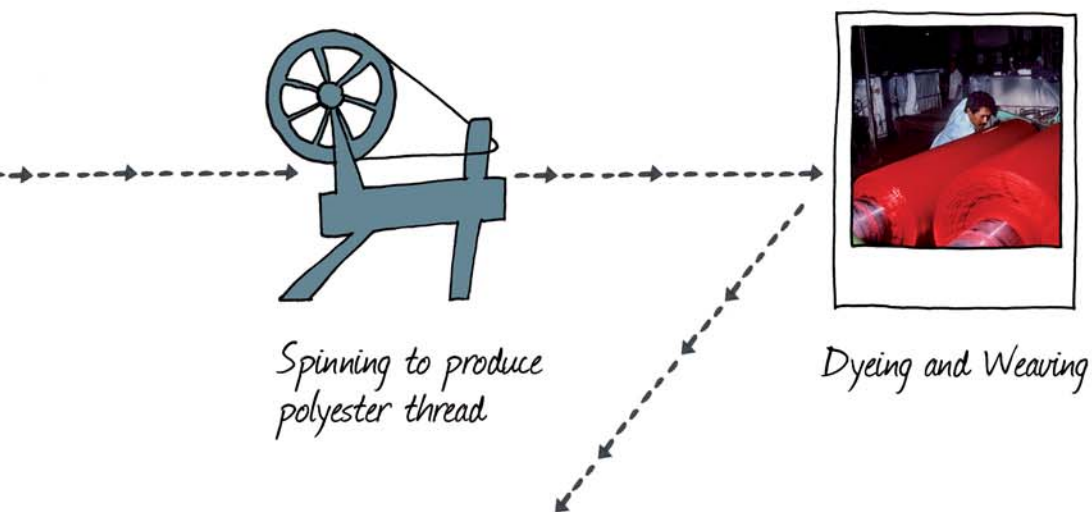
Retail



Warehouses



Reuse



KEY
MATERIAL:
POLYESTER

Life Cycle of a Polyester Fleece Jacket



PROCESS	MAJOR IMPACTS	POTENTIAL AREAS FOR IMPROVEMENT
OIL AND GAS PRODUCTION	<ul style="list-style-type: none"> PET is derived from petroleum, a non-renewable finite resource Results in the depletion of limited oil resources and drives exploration into environmentally sensitive areas 	<ul style="list-style-type: none"> ⇒ Consider use of recycled polyester
MANUFACTURE OF POLYESTER FROM PET	<ul style="list-style-type: none"> Very energy intensive process Use of antimony, a toxic metal and known carcinogen, as a catalyst. Long term inhalation causes chronic bronchitis and emphysema 	<ul style="list-style-type: none"> ⇒ Consider using recycled polyester ⇒ Use energy efficient processes ⇒ Manage energy use ⇒ Use renewable energy ⇒ Antimony is still considered the best currently available catalyst ⇒ Manage manufacturing process to minimise risks to workers
SPINNING	<ul style="list-style-type: none"> Creation of solid waste Poor labour conditions and long working hours can have health impacts. e.g. exposure to airborne fibres can cause respiratory diseases 	<ul style="list-style-type: none"> ⇒ Reuse waste material ⇒ Manage working conditions
DYEING	<ul style="list-style-type: none"> Energy consumption from dyeing process High water consumption Toxic chemicals used in the dyeing process have an environmental impact (use and disposal) Contaminated effluent produced as a waste product 	<ul style="list-style-type: none"> ⇒ Use energy efficient processes ⇒ Manage energy use ⇒ Use renewable energy ⇒ Reduce and manage water consumption ⇒ Treat waste water for reuse ⇒ Manage use of dyes to minimise effects on workers ⇒ Manage waste and test effluents regularly

WEAVING

- ⊗ Creation of solid waste
 - ⊗ Poor labour conditions and long working hours can have health impacts on workers e.g. exposure to airborne fibres can cause respiratory diseases
- ⇒ Reuse waste materials
 - ⇒ Manage working conditions
 - ⇒ Ensure medical examinations for workers

SEWING

- ⊗ Energy consumption from machinery operation
 - ⊗ Poor labour conditions and long working hours can have health impacts on workers
- ⇒ Use of energy efficient processes
 - ⇒ Manage energy use
 - ⇒ Use renewable energy
 - ⇒ Manage working conditions in accordance with Pentland's Business Standards

PACKAGING AND LABELLING

- ⊗ Labels made from precious resources such as paper and non-renewable materials such as plastic, which are often discarded at warehouse or by retailer
- ⇒ Reduce packaging
 - ⇒ Reduce labels
 - ⇒ Use recycled materials
 - ⇒ Use recyclable materials
 - ⇒ Avoid glues and staples which can contaminate waste
 - ⇒ Label packaging with appropriate disposal instructions

USE

- ⊗ Washing uses water and energy
 - ⊗ Dry cleaning and tumble drying use energy
 - ⊗ Dry cleaning uses solvents which produce pollution, contributing to climate change
- Make recommendations:
- ⇒ Care instructions to prolong life
 - ⇒ Lower temperature wash or hand wash
 - ⇒ Avoid biological powders
 - ⇒ Avoid tumble drying or recommend low temperature tumble dry
 - ⇒ Avoid dry cleaning

DISPOSAL

- ⊗ Polyester is a non-renewable resource, but it can be recycled
- Make recommendations:
- ⇒ How to recycle
 - ⇒ Donate to charity for reuse



Trash or treasure?

We produce footwear and clothing for the fashion-loving consumer. But what happens when new trends overtake the old?

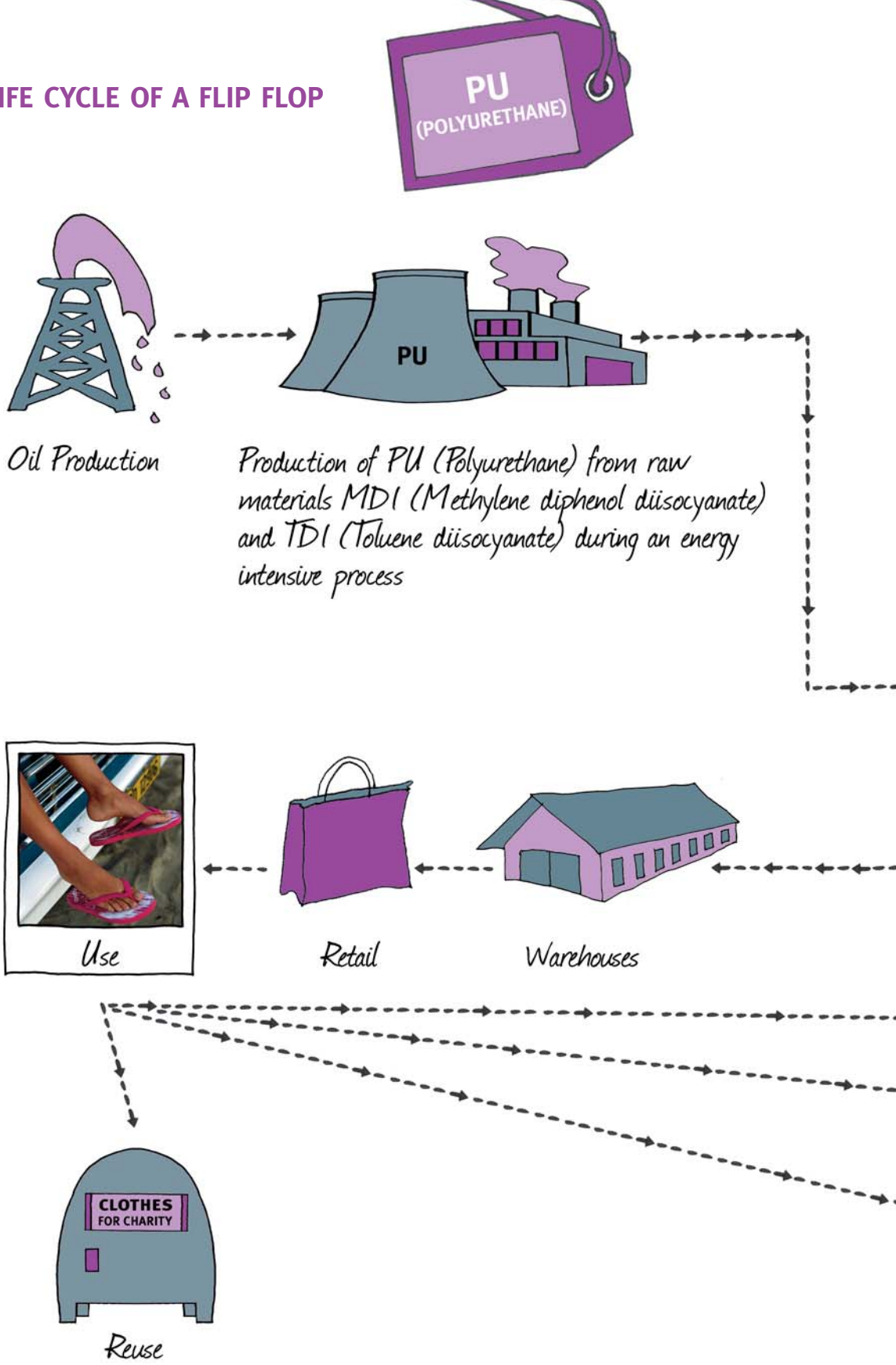
One person's trash can be another person's treasure.

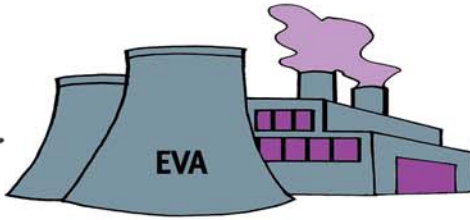
Donations of used clothing and shoes to charities not only helps people in need, but also reduces the amount of waste ending up in landfill.

Life Cycle of a PU / EVA Flip Flop



LIFE CYCLE OF A FLIP FLOP





*Production of EVA (Polyethylene Vinyl Acetate)
Process includes the use of acetic acid*

Oil Production



*Manufacturing - Materials
combined, Coloured,
Extruded, Cut, Assembled
and Packaged*



Incineration



Landfill



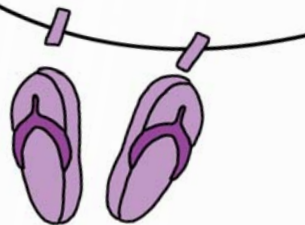
Recycle (limited options)

**REMEMBER TRANSPORT IS NEEDED
AT EVERY STAGE OF THE LIFE CYCLE**



KEY
MATERIALS:
PU & EVA

Life Cycle of a PU / EVA Flip Flop



PROCESS

MAJOR IMPACTS

POTENTIAL AREAS FOR IMPROVEMENT

FORMATION OF PU (POLYURETHANE)

- | | |
|---|---|
| <ul style="list-style-type: none"> ☼ Made using heat which is an energy intensive process | <ul style="list-style-type: none"> ⇒ Use recycled PU |
| | <ul style="list-style-type: none"> ⇒ Use energy efficient processes |
| | <ul style="list-style-type: none"> ⇒ Use renewable energy |
| <ul style="list-style-type: none"> ☼ Potential worker exposure to hazardous chemicals and vapours that are eye, skin and respiratory irritants | <ul style="list-style-type: none"> ⇒ Manage working conditions to prevent worker exposure to hazards |
| <ul style="list-style-type: none"> ☼ Fires in factories may put local communities at risk of exposure to noxious gases | <ul style="list-style-type: none"> ⇒ Contain any hazardous air vapours |
| | <ul style="list-style-type: none"> ⇒ Minimise fire risks through health and safety management |
| <ul style="list-style-type: none"> ☼ Waste water contains chemicals e.g. solvent residues | <ul style="list-style-type: none"> ⇒ Treat and/or contain any polluted waste water |
| <ul style="list-style-type: none"> ☼ Though PU is biodegradable, it is hazardous to aquatic life | |

FORMATION OF EVA (POLYETHYLENE VINYL ACETATE)

- | | |
|---|---|
| <ul style="list-style-type: none"> ☼ Health and safety of workers | <ul style="list-style-type: none"> ⇒ Manage working conditions |
| <ul style="list-style-type: none"> ☼ EVA is not currently recyclable | |
| <ul style="list-style-type: none"> ☼ Note: EVA has been in use for several years as a chlorine free substitute for PVC | |

COLOURING, EXTRUSION, CUTTING AND ASSEMBLY

- ⌚ Worker health and safety
 - ⇒ Manage working conditions in accordance with Pentland's Business Standards
- ⌚ Energy intensive process
 - ⇒ Use energy efficient processes
 - ⇒ Manage energy use
 - ⇒ Use renewable energy
- ⌚ Waste material produced
 - ⇒ Potential recycling of waste material

PACKAGING AND LABELLING

- ⌚ Usually packaged in plastic bags which are discarded by retailer, and end up in landfill
 - ⇒ Consider no plastic bags
 - ⇒ Use recycled plastic
- ⌚ Excessive packaging adds weight to product which may add to freight costs
 - ⇒ Consider multiple pairs packaged in one plastic bag
 - ⇒ Reduce weight of plastic
 - ⇒ Minimise labelling
- ⌚ The plastic hanger sometimes used for display is discarded by the retailer or consumer
 - ⇒ Consider using recycled card hanger

USE

- ⌚ Consumers may not keep item for long, but product is durable and can have a long life
 - Make recommendations:
 - ⇒ Highlight product durability and long life potential

DISPOSAL

- ⌚ Flip flops usually end up in landfill
 - Make recommendations:
 - ⇒ Donate to charity for reuse
- ⌚ Though PU is recyclable, EVA is not, so flip flops therefore cannot be recycled
- ⌚ Innovative ways of reusing flip flops include remodelling into jewellery and doormats

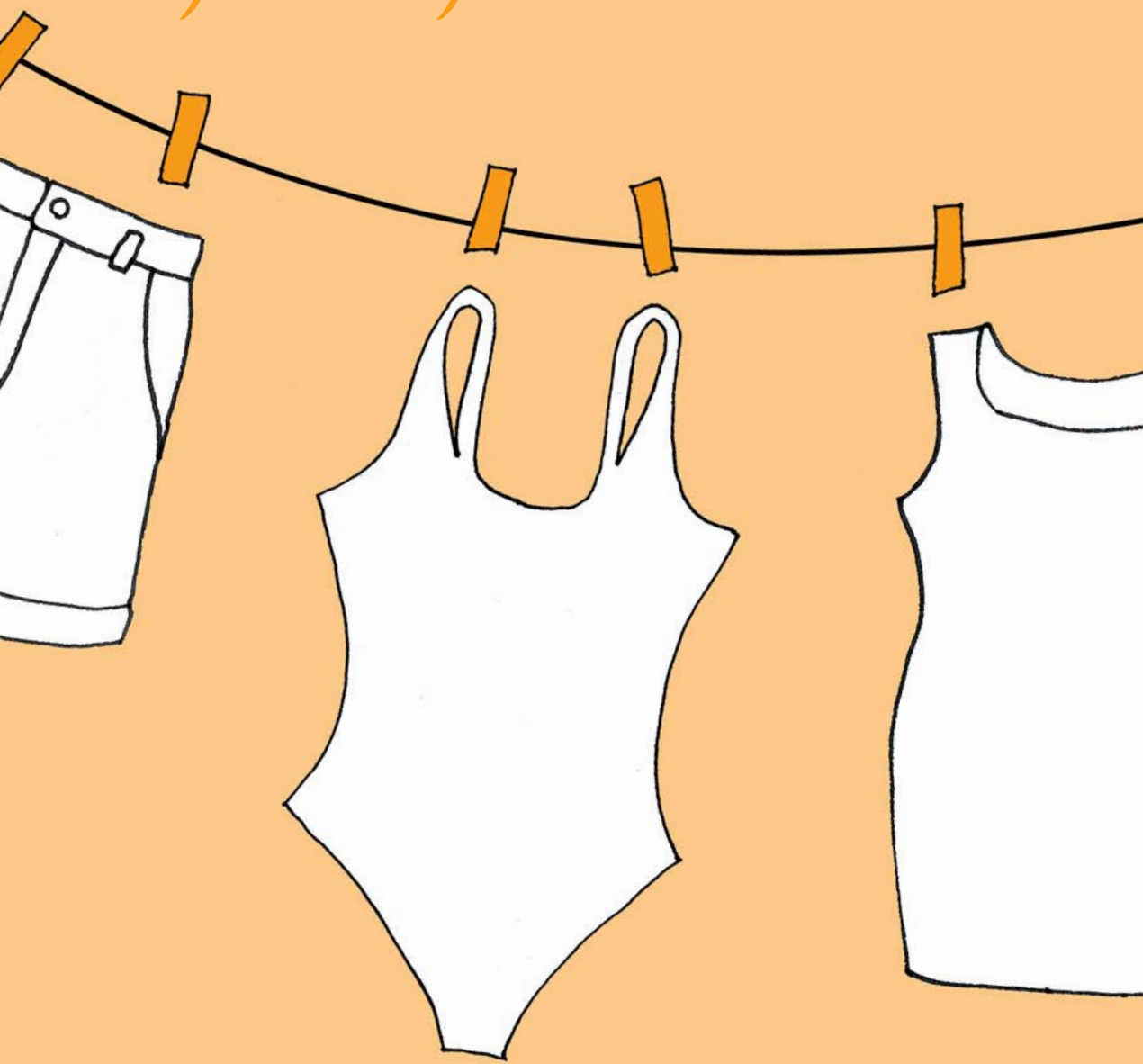


Reduce, Reuse, Recycle

Despite what some people might think, landfills aren't bottomless pits. The sooner we reduce, reuse and recycle our waste, the better.

Flip flops are usually made out of non-recyclable plastic, ending their life in landfill where they will remain for hundreds, if not thousands, of years.

Life Cycle of a Nylon / Lycra Swimsuit



LIFE CYCLE OF A SWIMSUIT



Oil Production



Benzene derived from petroleum broken down into key chemicals, such as adipic acid for molten nylon production from a condensation reaction



Nylon fabric produced from molten nylon



Use - Washing and Wearing



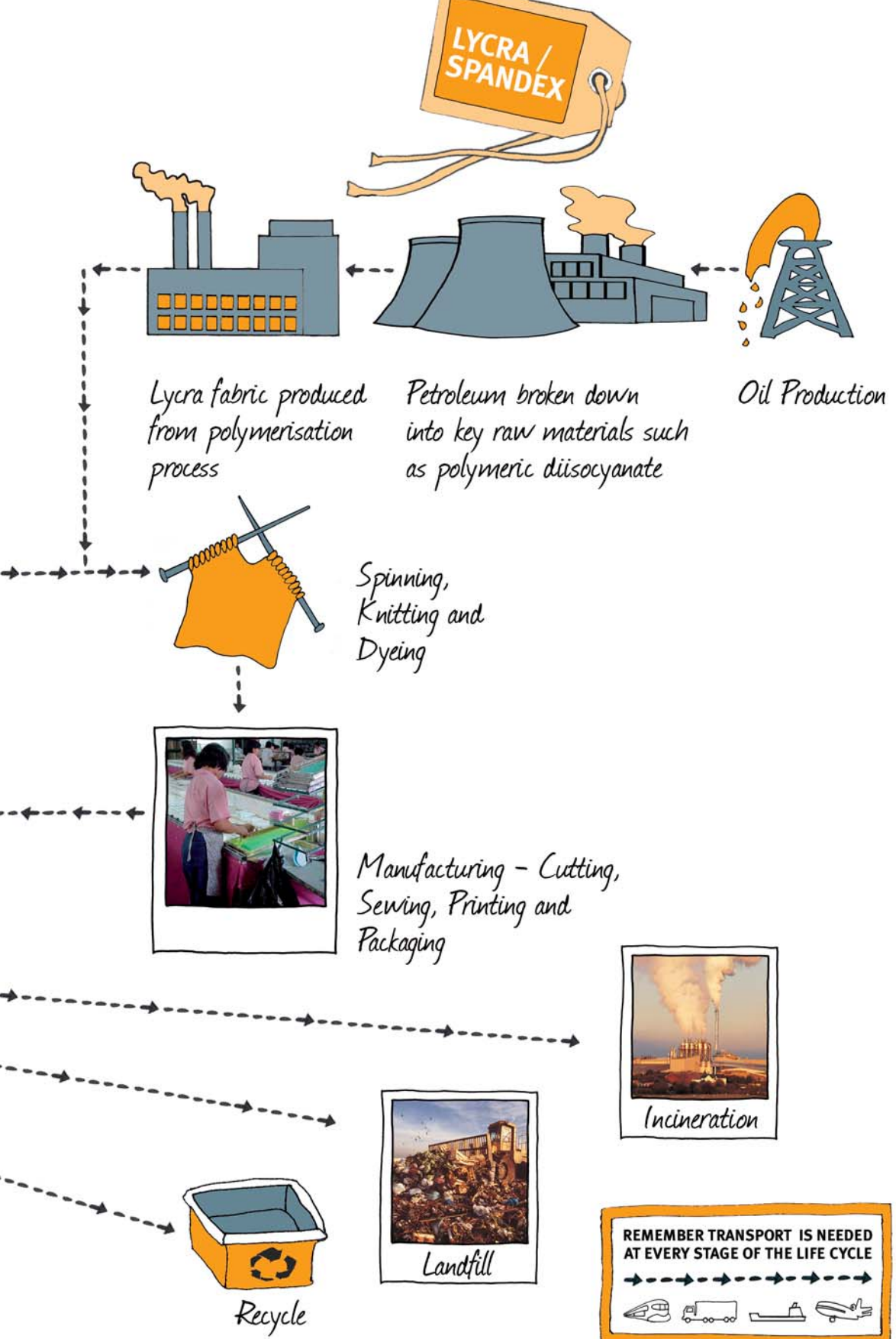
Retail



Warehouses



Reuse



KEY
MATERIALS:
**NYLON &
LYCRA**

Life Cycle of a Nylon / Lycra Swimsuit



PROCESS

MAJOR IMPACTS

POTENTIAL AREAS FOR IMPROVEMENT

NYLON

RAW MATERIALS (PRODUCTION OF FABRIC)

- ☹️ Raw material is petroleum, a non-renewable finite resource
 - ⇒ Potential use of recycled nylon content
- ☹️ Production of adipic acid results in the release of nitrogen oxides. These pollutant gases are difficult to treat and have an effect on climate change
 - ⇒ Seek alternative materials such as polyester (e.g. Bio Stretch) which is recyclable
 - ⇒ Research is ongoing to replace adipic acid in the production process to reduce environmental impact
- ☹️ Energy-intensive process
 - ⇒ Use energy efficient processes
 - ⇒ Manage energy use
 - ⇒ Use renewable energy

LYCRA

RAW MATERIALS (PRODUCTION OF FABRIC)

- ☹️ Derived from petroleum, a non-renewable finite resource
 - ⇒ Reduce the total amount of materials and components; investigate recycled content; use renewable raw materials
- ☹️ Processing of polymeric diisocyanate uses hazardous chemicals
 - ⇒ Production and use of such chemicals requires strict control to prevent pollution accidents and worker exposure
- ☹️ Chemical processes are applied to materials to prevent degradation of the material from chlorine
 - ⇒ Xtra Life Lycra® protects against chlorine to prolong the life of garment
- ☹️ Potentially hazardous work
 - ⇒ Manage working conditions
- ☹️ Energy-intensive process
 - ⇒ Use energy efficient processes
 - ⇒ Manage energy use
 - ⇒ Use renewable energy

SWIMSUIT PRODUCTION

SPINNING, KNITTING AND DYEING

- ⚙️ Use of machinery is potentially hazardous ⇒ Manage working conditions
- ⚙️ Waste water from dyeing process contains heavy metals ⇒ Manage waste

MANUFACTURING – CUTTING, SEWING AND PRINTING

- ⚙️ Energy consumption from machinery operation ⇒ Use energy efficient processes
- ⇒ Manage energy use
- ⚙️ Poor labour conditions and long working hours can have health impacts. Potential exposure of workers to airborne fibres can cause respiratory diseases ⇒ Use renewable energy
- ⇒ Manage working conditions in accordance with Pentland Business Standards
- ⚙️ Printing inks can be toxic and solvents are frequently used generating air and water pollutants ⇒ Minimise printing
- ⇒ Use water based printing inks and less toxic solvents

PACKAGING AND LABELLING

- ⚙️ Labels made out of paper or plastic ⇒ Reduce labels
- ⇒ Use recycled materials for labels
- ⚙️ Usually packaged in single plastic bags which are discarded by the retailer ⇒ Reduce weight of plastic bag
- ⇒ Consider multiple garments per bag
- ⇒ Use recycled plastic
- ⇒ Use recyclable plastic

USE

- ⚙️ Poor use and care shortens life of garment
- Make recommendations:
 - ⇒ Care instructions to prolong life
 - ⇒ Rinse garment immediately after use

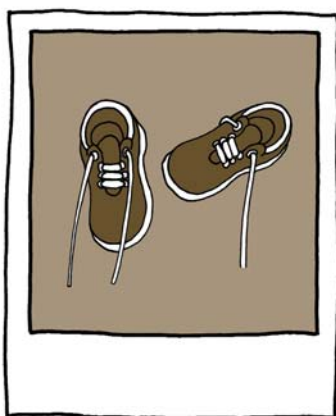
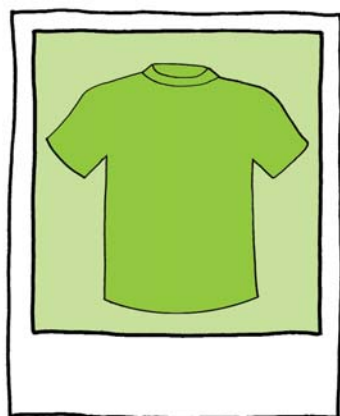
DISPOSAL

- ⚙️ Currently not recyclable
- Make recommendations:
 - ⇒ Donate good quality used garments to charity for reuse

Principles for Responsible Products

Thoughtful and responsible product design is the strength of Pentland Brands.

Make sure that care and consideration at the design stage follows through to product specifications, sourcing teams, marketing colleagues, customers and consumers. This can differentiate your product in the market place.



Using the Principles to rate and improve your products

- ✓ Every time a principle is used, the product gets a tick
- ✓ Try the ratings grid, over the page, with one of your products
- ✓ How many ticks does your product score?
- ✓ What could you change to improve its environmental credentials?

Principles for Responsible Products

Below are ten general principles that can help us work towards more environmentally responsible products and packaging.

Country of origin of materials traceable as far as possible

Raw materials and components sourced as close as possible to place of manufacture

Materials and components produced in an environmentally sustainable way, so they can be reused or recycled or are biodegradable

Designs optimise use of materials and use efficient manufacturing processes to reduce consumption and waste

Manufacturing facilities have been reviewed against Pentland's Group Business Standards Policies

Products meet all safety regulations, with minimal use of potentially harmful chemicals (restricted substances)

Packaging and labelling is minimal and made of recycled, recyclable or biodegradable materials

Marketing and point of sale (POS) material designed to be reused and recycled at the end of its life

Care instructions encourage environmentally responsible use and maintenance

Instructions provided to encourage safe end of life disposal of product or take-back service

COMMUNICATE ALL OF THE ABOVE !

It will not be possible to use each principle every time for every product. However, by trying to use as many principles as possible, over time, we can reduce the impact of our products on the environment.

Cotton T-shirt

Principle	Ordinary Product	More responsible product	Ideas to improve product
1. Country of origin of materials traceable		✓	Origin of cotton known
2. Raw materials sourced as close to manufacturing as possible			
3. Materials produced in an environmentally sustainable way (recycled/ recyclable/ biodegradable)		✓	Organic cotton used
4. Designs make optimal use of materials to minimise waste from cut offs			
5. Manufacturing facilities have been reviewed against Pentland's Group Business Standards Policies	✓	✓	Review report available and corrective actions followed up
6. Product is safe for use and chemically safe	✓	✓	Reports available
7. Minimal packaging which is of recycled, recyclable or biodegradable materials		✓ ✓	Plastic bag reduced in weight and recyclable
8. Marketing and POS which can be reused/ recycled			
9. Care instructions that promote environmentally friendly practices		✓	Wash at 30 °C
10. Instructions on safe disposal or take back service			
Total	2	7	

Leather / Rubber Shoe

Principle	Ordinary Product	More responsible product	Ideas to improve product
1. Country of origin of materials traceable		✓	Country of origin for rubber was traceable
2. Raw materials sourced as close to manufacturing as possible		✓	Tannery in same country
3. Materials produced in an environmentally sustainable way (recycled/ recyclable/ biodegradable)		✓	Leather produced in a tannery which has a recognised environmental certification
		✓	Rubber sourced from FSC certified plantation
4. Designs make optimal use of materials to minimise waste from cut offs		✓	Factory uses SATRASumm (or similar software)
5. Manufacturing facilities have been reviewed against Pentland's Group Business Standards Policies	✓	✓	Review report available and corrective actions followed up
6. Product is safe for use and chemically safe	✓	✓	Reports available
7. Minimal packaging which is of recycled, recyclable or biodegradable materials	✓	✓	Shoe box made from recycled card which is recyclable
8. Marketing and POS which can be reused/ recycled			
9. Care instructions that promote environmentally friendly practices			
10. Instructions on safe disposal or take back service			
Total	3	8	

Polyester Fleece Jacket

Principle	Ordinary Product	More responsible product	Ideas to improve product
1. Country of origin of materials traceable			
2. Raw materials sourced as close to manufacturing as possible			
3. Materials produced in an environmentally sustainable way (recycled/ recyclable/ biodegradable)		✓	Polyester was made from recycled PET bottles
4. Designs make optimal use of materials to minimise waste from cut offs		✓	Factory uses system to optimise fabric use (Gerber/ Lectra etc)
5. Manufacturing facilities have been reviewed against Pentland's Group Business Standards Policies	✓	✓	Review report available and corrective actions followed up
6. Product is safe for use and chemically safe	✓	✓	Reports available
7. Minimal packaging which is of recycled, recyclable or biodegradable materials		✓ ✓	Two units in one plastic bag Plastic bag recyclable
8. Marketing and POS which can be reused/ recycled			
9. Care instructions that promote environmentally friendly practices		✓	Wash at 30 °C
10. Instructions on safe disposal or take back service		✓	Can be returned to shop for recycling
Total	2	8	

Definitions

Biodegradable

Capable of being broken down or decomposed naturally by micro-organisms and bacteria.

Biodiversity

The variety, distribution and abundance of living organisms in an ecosystem. Maintaining biodiversity is believed to promote stability, sustainability and resilience of ecosystems.

Ethical Trade

Trade that meets minimum international standards (UN and International Labour Organisation) on human rights, labour rights and health and safety. Pentland is a founding member of the Ethical Trading Initiative (ETI).

Fairtrade

A movement helping family farmers and small producers in developing countries gain direct access to international markets. A form of subsidy where the consumer pays a premium over the market price that is returned to the producer for social and environmental development.

Ginning

The process used to remove the seeds from raw cotton.

Integrated Crop Management

A crop production programme designed to: balance the use of chemical and organic inputs in crops; help attain sustainability in crop production; reduce costs; improve quantitative as well as qualitative yield of the crop; and bring greater benefits to farmers. ICM is recognised by The Fairtrade Foundation.

Landfill

An area designated to receive waste. Landfills can be harmful because they can leach toxins into the groundwater and methane and other toxic gases into the air.

Non-renewable resource

A resource which cannot be replaced once it is used up, for example fossil fuels (oil, natural gas and coal).

Organic Cotton

Cotton that is grown without pesticides from plants that have not been genetically modified. To be certified, it must be grown in soil that has been chemical-free for at least the last three years.

Recycled

A term used to describe material that has been separated from the waste stream, reprocessed into a new product, and then reused as a new item.

Recyclable

A product, package or material that can be recycled. However, there may not be a recycling programme that takes the identified material in the consumer's area.

Renewable resource

A natural resource that can be replenished by natural means at rates comparable to its rate of consumption.

Restricted Substances

Chemicals that may be used in the manufacturing of a product but should not be present in the final product. There are legal limits in some countries for some substances based on health or environmental grounds. Pentland has an annual testing programme over and above what should be normal procedures in sourcing materials. Guidance on the restricted substances and legal and advisable limits can be obtained from the Pentland Intranet.

Solvents

A liquid that dissolves a solid, liquid, or gaseous solute, resulting in a solution. Common uses for organic solvents are in dry cleaning (e.g. tetrachloroethylene), as paint thinners (e.g. toluene, turpentine), and glue solvents (acetone, methyl acetate, ethyl acetate). If inhaled, solvents can lead to a sudden loss of consciousness and can damage internal organs like the liver, the kidneys, or the brain. Spills or leaks of solvents into underlying soil and water can cause serious environmental contamination.

Spinning

The process of creating yarn (or thread, rope, cable) from various raw fibre materials.

Traceability

The ability to trace the history, application or origin of an item by means of a record.

VOC

Volatile Organic Compound. An organic chemical that evaporates relatively easily when exposed to air.

Useful information on the Pentland Intranet



- 🌐 Pentland Group Environmental Policy and Objectives
- 🌐 Restricted Substances Guidelines
- 🌐 Pentland's Footprint Around the World 2006
- 🌐 Hazardous Substances in Factories booklet for information on solvents (VOCs)
- 🌐 Animal skins and ethical issues

Other resources in development

- 🌐 Database of raw materials
- 🌐 Washing and cleaning standard labelling
- 🌐 Plastic recycling labelling

United Nations Global Compact

The Pentland Group has supported the UN Global Compact since its inception in 2000. We are required to communicate yearly on our progress at implementing the UN Global Compact Principles. This report is focused on the three principles concerning the environment:



- 🌐 Businesses should support a precautionary approach to environmental challenges;
- 🌐 Undertake initiatives to promote greater environmental responsibility; and
- 🌐 Encourage the development and diffusion of environmentally friendly technologies.

How this booklet was produced



We have used our Principles for Responsible Products to produce this publication.

Principle	Our Product														
1. Country of origin of materials traceable	Written and produced in the UK														
2. Raw materials sourced as close to manufacturing as possible	All materials sourced and produced in the UK														
3. Materials produced in an environmentally sustainable way (recycled/ recyclable/ biodegradable)	<table><tr><td>Paper</td><td>100% post consumer recycled paper from the Frogmore Mill, with inclusion of grass clippings from the English National Stadium</td></tr><tr><td>Cover Boards</td><td>100% recycled post consumer waste</td></tr><tr><td>Binding</td><td>100% recycled, recyclable, cadmium free, odourless</td></tr><tr><td>Ink</td><td>Soy based inks made from natural sources</td></tr><tr><td>Glue</td><td>Traditionally made from discarded animal bones</td></tr><tr><td>Paper size</td><td>Optimal size of 168 x 245mm (between A5 and A4) maximises use of paper on the printing press, minimising waste and saving energy</td></tr><tr><td>Graphic Designers</td><td>arc plc have a zero water usage recycling system and employ organic land management methods at their studio and accommodation site in Devon</td></tr></table>	Paper	100% post consumer recycled paper from the Frogmore Mill, with inclusion of grass clippings from the English National Stadium	Cover Boards	100% recycled post consumer waste	Binding	100% recycled, recyclable, cadmium free, odourless	Ink	Soy based inks made from natural sources	Glue	Traditionally made from discarded animal bones	Paper size	Optimal size of 168 x 245mm (between A5 and A4) maximises use of paper on the printing press, minimising waste and saving energy	Graphic Designers	arc plc have a zero water usage recycling system and employ organic land management methods at their studio and accommodation site in Devon
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Graphic Designers	arc plc have a zero water usage recycling system and employ organic land management methods at their studio and accommodation site in Devon														
4. Designs make optimal use of materials to minimise waste from cut offs	This booklet is printed by Sharp Print. Employees are very much involved in the running of the business and working conditions. Sharp Print follow effluent restrictions and waste regulations, including recycling, and maintain up-to-date certifications														
5. Manufacturing facilities have been reviewed against Pentland's Group Business Standards Policies	This booklet contains no restricted substances. The soy ink is made from natural sources and is considered environmentally safe industry-wide														
6. Product is safe for use and chemically safe	n/a														
7. Minimal packaging which is of recycled, recyclable or biodegradable materials	n/a														
8. Marketing and POS which can be reused/ recycled	Readers are encouraged to keep this booklet as a resource														
9. Care instructions that promote environmentally friendly practices	Readers are encouraged to pass this booklet on to a colleague or friend for reuse, OR recycle it. Instructions for recycling are provided on back cover with recycling accredited symbols														
10. Instructions on safe disposal or take back service															

