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Carbon Footprinting and Beyond for Decorative Paints

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AkzoNobel Decorative Paints

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building a sustainable future

step towards greener

products & services

people & communities

energy

transport

waste & resources

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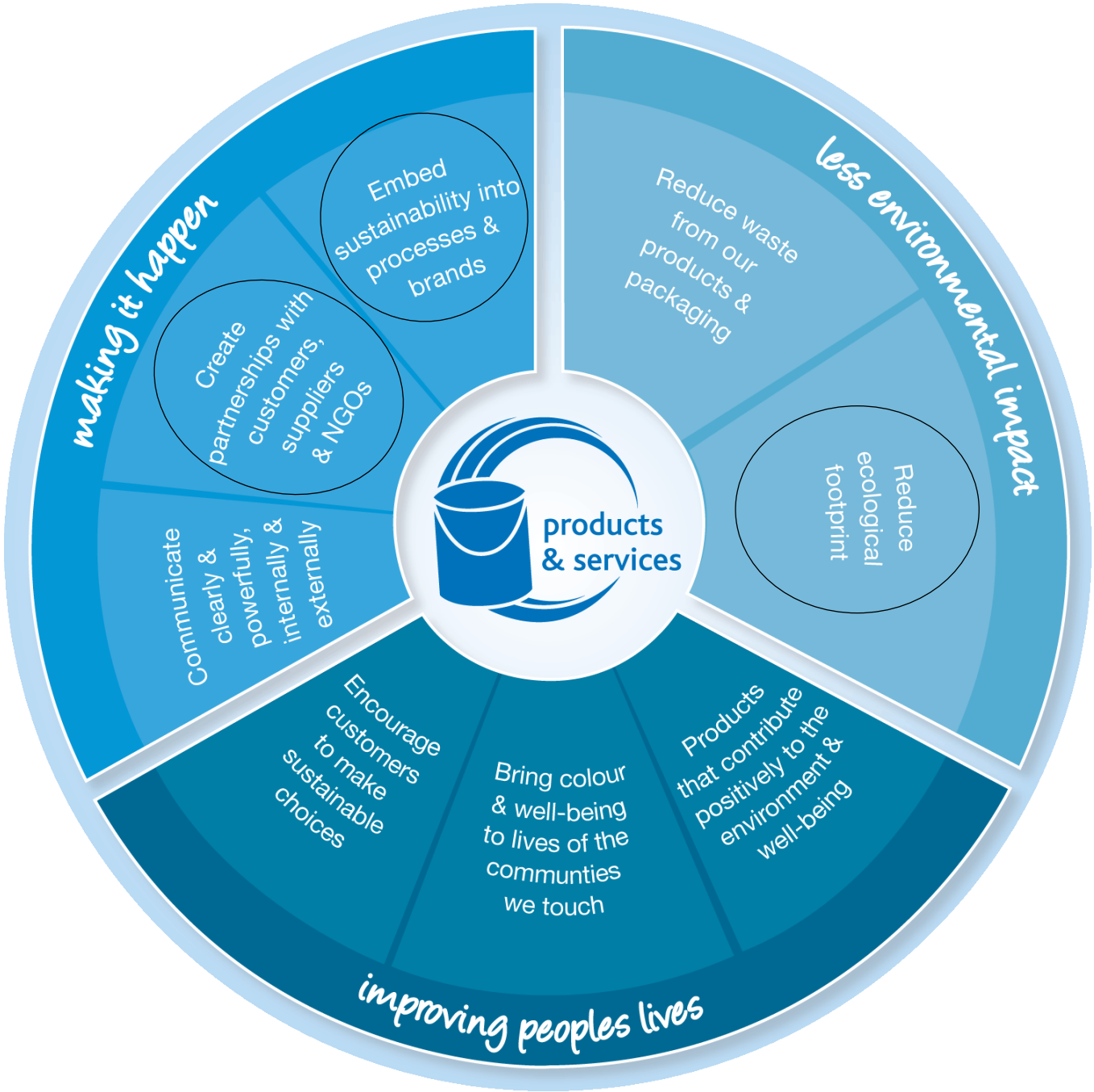
Our vision for Products & Services

products & services

Our innovative products and services will create sustainable value by systematically reducing the ecological footprint of the whole-life decorating process/cycle and making a real and positive difference to the environment and the well-being of people's lives, communities and their surroundings


making it happen
Embed sustainability into processes & brands
Create partnerships with customers, suppliers & NGOs
Communicate clearly & powerfully, internally & externally
less environmental impact
Reduce waste from our products & packaging
Reduce ecological footprint
products & services
improving peoples lives
Encourage customers to make sustainable choices
Bring colour & well-being to lives of the communties we touch
Products that contribute positively to the environment & well-being

The challenge!

How do we

- quantify
- demonstrate the improvement for

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Need facts & evidence

Consumer distrust motivation of companies with green issues

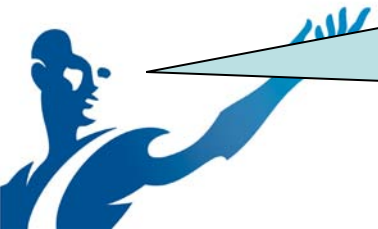
Professional specifiers want the evidence that something has an environmental benefit

Both are hungry for strong reasons to believe.

Interested in whole environmental agenda (not only carbon)

We need hard holistic facts to back up our leadership position

63% of consumers think that 'companies are just using these issues to try and look good'



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How could we embed sustainability in our innovation process?

Our plan was to

1. **Develop an understanding of what is "a sustainable paint"**
2. **Communicate this throughout our organisation**
3. **Identify/"invent" technologies that could help us start our journey towards sustainability**
4. **Bring such technologies to the marketplace**

This would require adaptations to some details of stage gate to

- **recognise importance of sustainability**
- **provide for "genuine evidence" of improved sustainability**
- **make such sustainability "tools" easily accessible to all**

These adaptations (now global) are now in place as a result of this joint work with Forum for the Future

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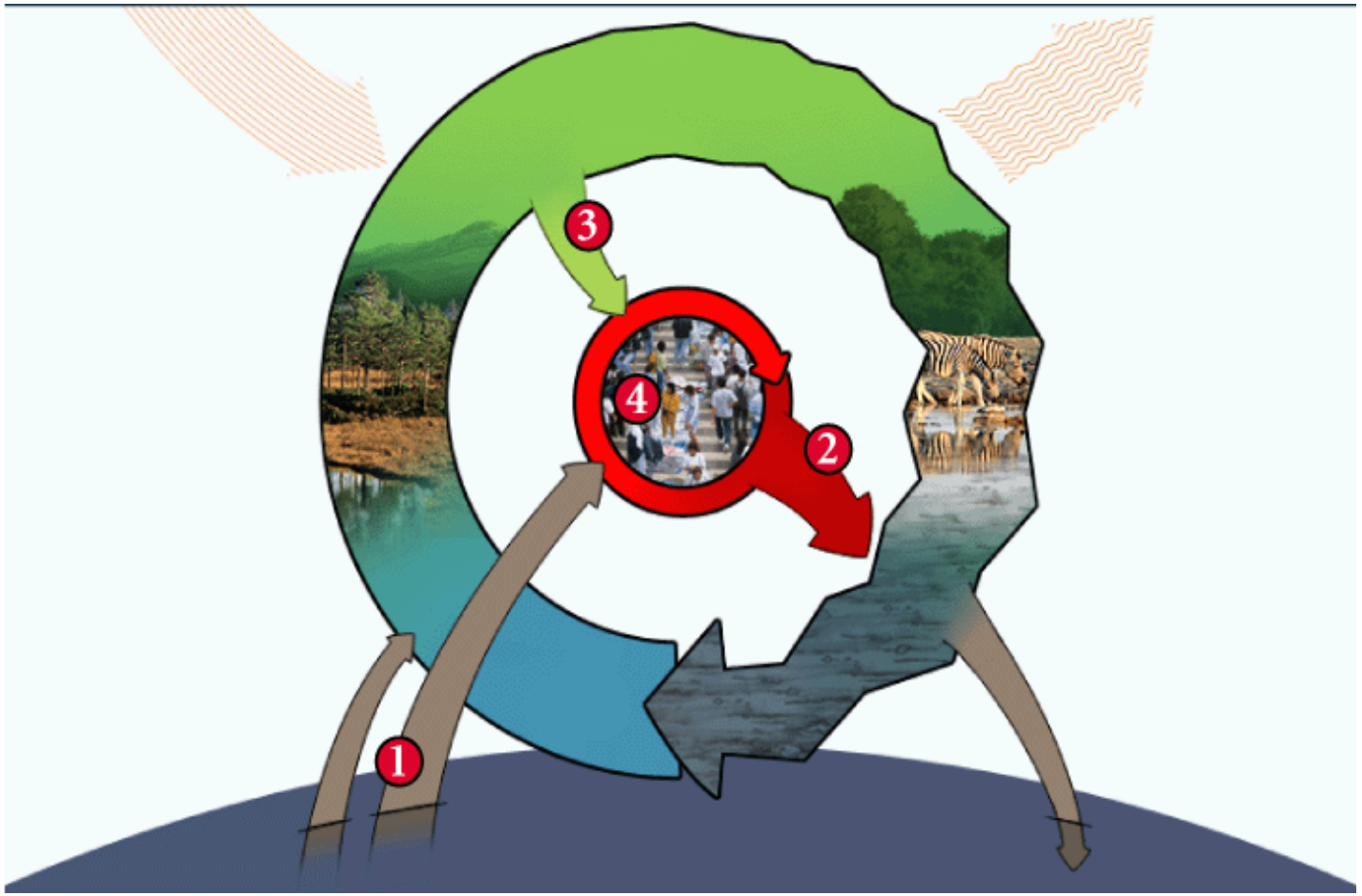
What is "a sustainable paint"?

Started with The Natural Step Framework



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What is “a sustainable paint”?

Looked at our product’s lifecycle

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What is "a sustainable paint"?

Combined the thinking

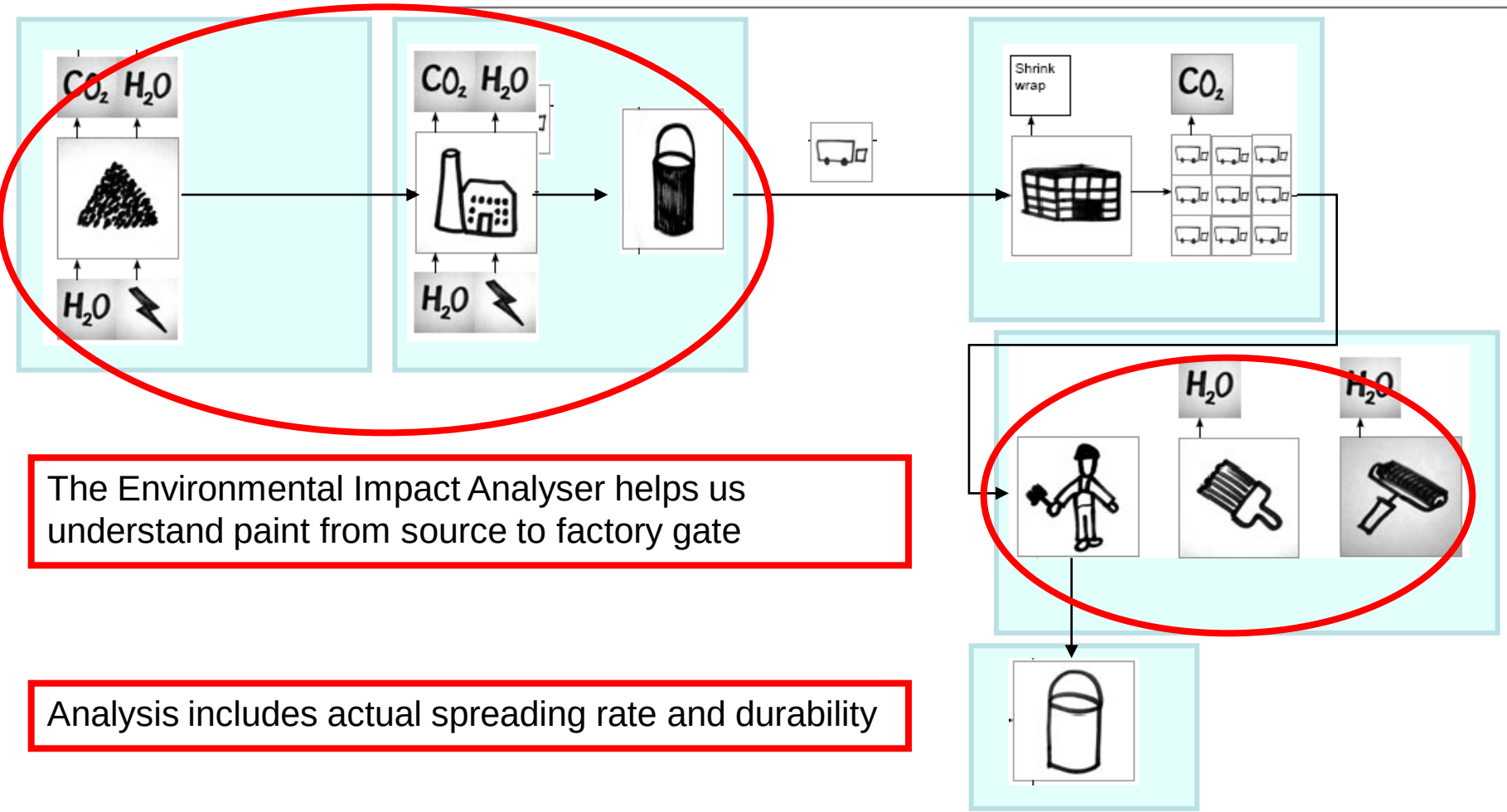
Developed questions to allow population of squares

The questions can be easily modified to suit your product or process

		System conditions			
		Materials from the earth's crust	Man-made materials	Degradation of biosphere	Undermining people's capacity to meet their needs
Life cycle stages	Raw materials What is paint made of?				
	Paint synthesis What are the process' inputs and outputs?				
	Packaging & distribution How is the paint packaged and distributed?				
	Use What other inputs or consumables are needed?				
	End of life How is paint disposed of?				

Paint lifecycle

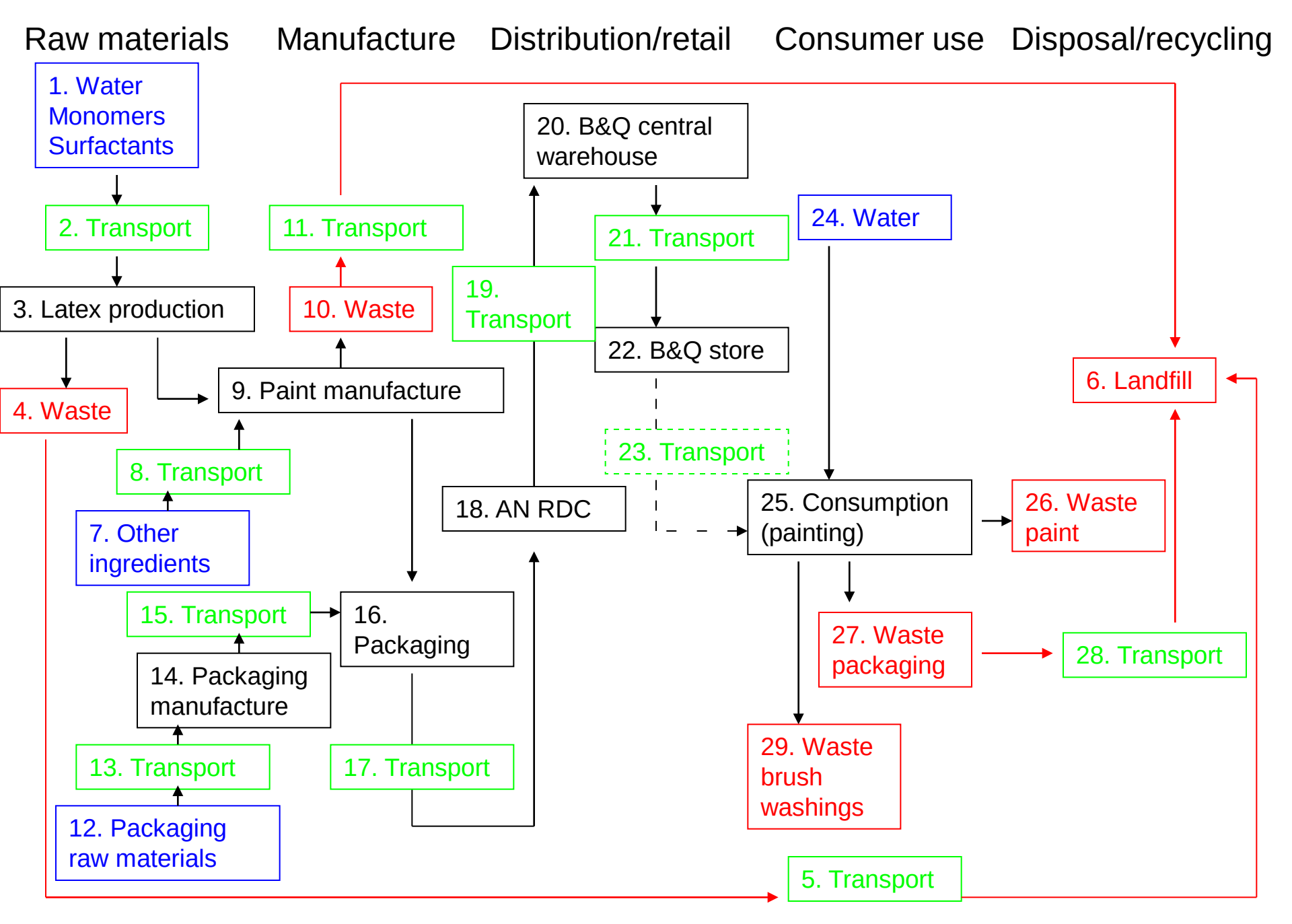
TSB Project No: TP/4/ZEE/6/I/21165



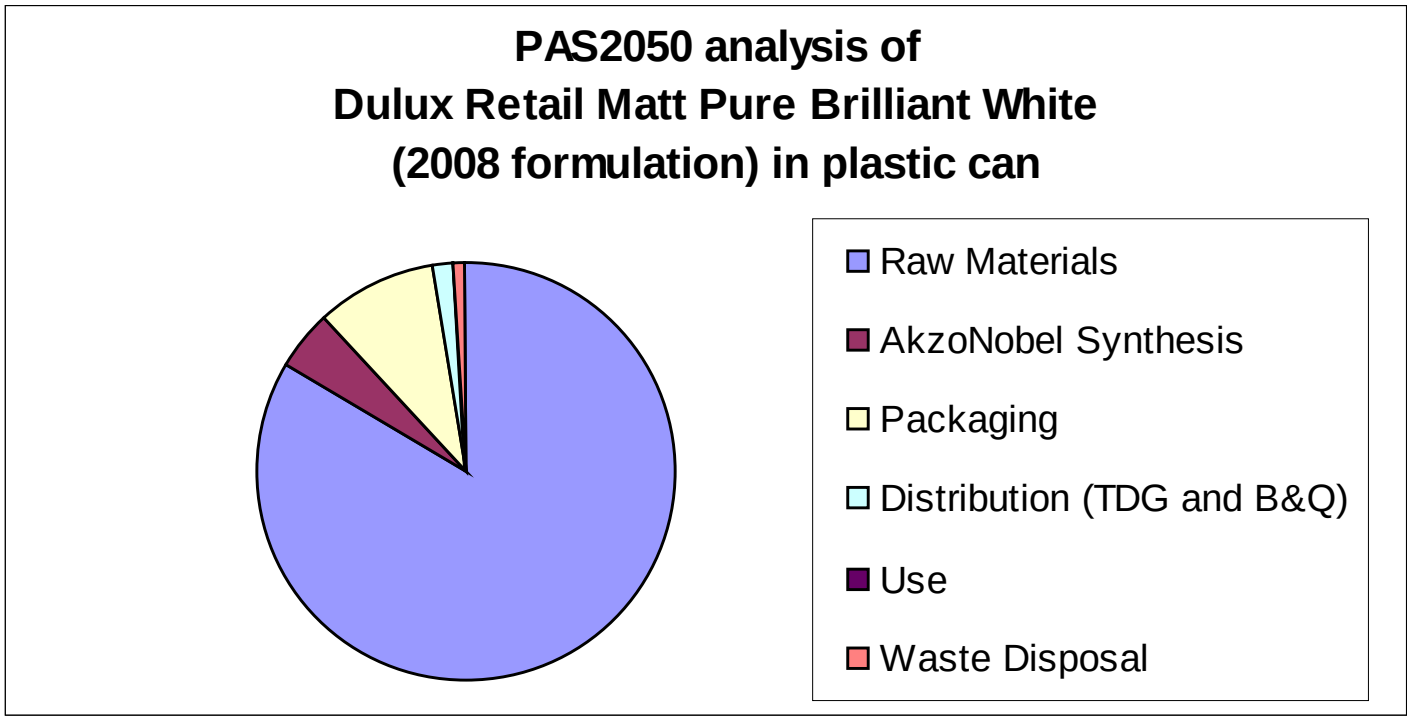
The Environmental Impact Analyser helps us understand paint from source to factory gate

Analysis includes actual spreading rate and durability

PAS2050 analysis of Dulux Retail Matt Pure Brilliant White (2008 formulation) in plastic can (1 x 5L)



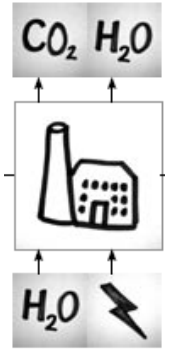
PAS2050


PAS2050 analysis of
Dulux Retail Matt Pure Brilliant White
(2008 formulation) in plastic can
Raw Materials
AkzoNobel Synthesis
Packaging
Distribution (TDG and B&Q)
Use
Waste Disposal

Product impact analysis
Paint = Ingredients + Manufacture

Pigments	Mining	Road and Shipping	Processing	Road		
Latex Binder	Extraction	Tanker	Chemical processing to make monomer	Road	Conversion to Polymer	
Alkyd Binder	Growth	Harvesting	Milling	Shipping	Road	Alkyd formation
	Extraction	Tanker	Refinery	Transport	Chemical Processing	Road
Water	Transport	Processing				
Petrochemical solvent	Extraction	Tanker	Refinery	Transport	Chemical Processing	Road
Generic petrochemical ingredients	Extraction	Tanker	Refinery	Transport	Chemical Processing	Road
Generic non-petrochemical ingredients	Growth	Harvesting	Milling	Transport	Chemical Processing	Road

Flow chart		Data	
	Initial step		Supplier
	Processing		Combination of supplier and industry/comparable data
	Transport		Industry/Comparable data
			Defra factors



- **Data on the paint manufacture**
  - CO2e as we convert raw materials to finished products
  - Waste as we convert raw materials to finished products
  - Water as we convert raw materials to finished products

Where does the data come from?

Raw Material Palette (> 150 used for paint manufacture)

- TiO_2
- Extenders
  - Chalk
  - Precipitated calcium carbonate
  - Clay
  - Opaque Bead
- Latex
- Tinters
- Additives

33 different sub categories of raw material identified.

Started by getting actual data on one from each.

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How does the Environmental Impact Analyser work?

Formulation 1	CO_2e (g)	Waste (kg)	Water (kg)
Ingredient A	100	40	50
Ingredient B	90	20	3
Ingredient C	30	12	13
Paint manufacture	5	5	5
Pack D	35	65	10
Total Formulation 1	**260**	**142**	**81**

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How does the Environmental Impact Analyser work?

Formulation 2	CO_2e (g)	Waste (kg)	Water (kg)
Substitute Ingredient E	60	10	30
Ingredient B	90	20	3
Ingredient C	30	12	13
Paint manufacture	5	5	5
Pack D	35	65	10
Total Formulation 1	**260**	**142**	**81**
Total Formulation 2	**220**	**112**	**61**

Formulation 2 has a 15% reduction in CO_2

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Integrity and accuracy

- Important as Environmental Impact Analyser output informs Marketing claims
- Calculation and data sourcing methodology from

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- Input data traceable
  e.g. Actual suppliers, Boustead, IPCC,
  GaBi (with AN T&E Sustainability, Gothenburg, Sweden),
- Includes real life product performance assessment
- Benchmarking
  - PAS2050
  - CCalc (with acknowledgement to B&Q)
  - Simply Sustain LLC, USA

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Globalisation

environmental impact analyser™

- Available globally within AkzoNobel Decorative Paints to all paint research scientists and formulators
- Using regional transport and energy data
- Regular updates of raw material data

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Products delivered to the marketplace