

Institution: Nottingham Trent University
Unit of Assessment: D34 Art and Design: History, Practice and Theory
Title of case study: Public policy on the sustainability of consumer goods
<p>1. Summary of the impact</p> <p>Research on sustainability in this unit is helping to extend the lifetime of clothing and other consumer products (durables/ semi-durables) by informing government policy and influencing manufacturers to reduce waste and over-consumption. Our findings on key policy instruments have fed into new government guidelines, prepared in the context of EU legislation, on the potential to reduce waste by increasing product lifetimes. Our clothing sector research has been disseminated to policymakers and industry stakeholders through studies on public understanding of sustainable clothing, clothing behaviour and designing clothes for longevity. Together they have culminated in a Government-funded initiative to create an industry-supported Clothing Longevity Protocol.</p>
<p>2. Underpinning research</p> <p>Insights from the research programme are providing an evidence base to assess policy options for increasing product lifetimes, structured around an instruments-based model (i.e. regulatory, market based, voluntary) and drawing upon previous product longevity studies relating to economic policy, consumer behaviour and product design. The insights have been applied to the clothing sector, in particular, in the context of public policy goals relating to reduced carbon emissions.</p> <p><i>Sustainability</i> - Research into sustainable design and production has flourished at NTU since the 1990s (Sect 3, vi). Initial scholarship and pedagogic research was driven primarily by a commitment to high quality postgraduate and undergraduate teaching and expertise in sustainable design grew as the concept became established in the 1990s. From around 2000 it was applied to projects in sectors such as lighting and furniture and areas such as human-powered products, led by Prof Daizhong Su (1992 to date) and Paul Johnson (1992 to date). Staff also explored sustainable design in the developing world and in the context of open design and community-based models. Initial research on product life extension related to waste from products (specifically, packaging), led by Professor Tom Fisher (2007 to date, Sect 3, ii, iii), but this later broadened to consumer durables, led by Professor Tim Cooper (2010 to date, Sect 3, i). <i>Clothing sector</i> - Research has primarily been applied in the clothing sector, with technical knowledge and understanding rooted in research since the early 1990s on clothing technology, textile science and, latterly, fashion design, led by Professors George Roberts (1972-2001), Winifred Aldrich (1991-2001) and David Elson (1966-2000) and by Dr Katherine Townsend (2000 to date, Sect 3, iv, vi). Knowledge of commercial aspects of sustainability came from industrial expertise, led by NTU's Institute for Sustainable Development in Business (from 1997) and more recently its CSR / Sustainability Research and Teaching Group. Expertise is also enhanced through the University's SME service, Future Factory (launched in 2009), and business incubator the Hive, in which design staff work on sustainability-related projects in partnership with local companies.</p> <p><i>International context</i></p> <p>The context for research on product longevity is the need to address over-consumption in industrialised countries which emerged on the agenda of the 1992 Earth Summit. This led policymakers to pay greater attention to the environmental impact of consumer products which, in turn, stimulated discussion on product lifetimes in the context of sustainable design and waste reduction. In the mid-1990s Eternally Yours, a Dutch organisation, brought together researchers and practitioners with an interest in product longevity. In 2004 Tim Cooper received an EPSRC grant to establish the Network on Product Life Spans, which continued the debate. Cooper's early, exploratory research culminated in <i>Beyond Recycling</i>, a 1994 report that received national media attention, and he has subsequently undertaken both qualitative and quantitative research, focussing on electrical goods and clothing and including studies on theories on obsolescence, consumer attitudes and economic implications of increased product lifetimes.</p>
<p>3. References to the research</p> <p>The following outputs have been reviewed by two external senior academics. (Names of reviewers can be provided for the panel on request).</p>

Key outputs

- i. Tim Cooper (ed.) (2010), *Longer Lasting Products*, Farnham: Gower. (432pp.)
<http://www.gowerpublishing.com/isbn/9780566088087>
- ii. Tom Fisher and Janet Shipton (2009), *Design for Re-use*, London: Earthscan.
<http://www.routledge.com/books/details/9781844074884/>
- iii. Tom Fisher, Tim Cooper, Sophie Woodward, Alex Hillier and Helen Goworek (2008), *Public Understanding of Sustainable Clothing*, Report to the Department for Environment, Food and Rural Affairs. London: Defra. (71pp), with Appendices (68pp).
<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=15626>
- iv. Katherine Townsend (2011), The Denim Garment as Canvas: Exploring the Notion of Wear as a Fashion and Textile Narrative, *Textile: The Journal of Cloth and Culture*, 9 (1), pp. 90-107. <http://dx.doi.org/10.2752/175183511X12949158771554>
- v. Helen Goworek, *Fashion Buying*, (2007) London: Blackwell.
http://bookshop.blackwell.co.uk/jsp/display_product_info.jsp;jsessionid=9AA7CE5721AF9E395FDDAB51964A50A1.bobcatp1?isbn=9781405149921
- vi. Winifred Aldrich, Brian Smith and Feng Dong (1996) Obtaining repeatability of natural extended upper body positions: Its use in comparisons of the functional comfort of garments *Journal of Fashion Marketing and Management*, Vol. 2, Iss: 4, pp.329-351. DOI [10.1108/eb022538](https://doi.org/10.1108/eb022538)

Key research grants

RCUK, 2013-18, £1,018,000, UK INDEMAND Research Centre. (Cooper)

WRAP, 2012-13, £81,400, Clothing Longevity Protocol. (Cooper)

European Commission, 2012-14, £137,170, Market deployment of eco-lighting products. (Su)

Defra, 2012-13, £7,000, The potential role of collaborative consumption tools and practices in helping people increase the useful life of products. (Cooper)

European Union FP7, 2012-15, £366,667, A consumer-oriented prototype forming the nucleus of a novel Ecological Accounting System. (Su)

WRAP, 2012, £35,000, Guidance on design for longevity of clothing. (Cooper, Fisher)

EMDA, 2011-12, £15,594, Development of a novel eco-lighting product. (Su)

ERDF, 2009-12, £21,948, Future Factory sub-contracts. (Johnson, Cooper, Harmer)

WRAP, 2011, £7,000, Understanding opportunities to increase reuse and repair. (Cooper)

WRAP, 2011, £8,800, Clothing behaviour. (Cooper)

Defra, 2007-08, £60,000, Public understanding of sustainable clothing. (Fisher)

4. Details of the impact

The impact of NTU's research on public policy on the sustainability of consumer goods and the factors that influence product lifetimes is evidenced by references in policy debate. It is beginning to shape the next generation of manufactured goods, bringing more benefits to consumers and to the environment.

Primary beneficiaries include Defra and WRAP (Waste and Resources Action Programme), who in developing **government policy** have commissioned studies citing our research (WRAP, 2009, 2010; ERM 2011). Our findings have been applied to the clothing sector in particular, disseminated to policymakers and industry stakeholders through various studies (e.g. Fisher et al., 2008; WRAP, 2012). Our research has shaped policy documents such as the *Government Review of Waste Policy in England* (Defra, 2011a) and the strategic direction of publicly funded bodies such as WRAP (see research grants).

Public policy has only recently begun to address product lifetimes and academic research was necessary to establish the rationale and credibility. After the UK Government became aware that the EU Waste Framework Directive required member states to produce **waste reduction plans**, Defra commissioned an independent research study on the potential for increasing product longevity. The subsequent report (ERM, 2011:13) cited Cooper as "a leading academic working in

Impact case study (REF3b)

this field”, and an associated study on consumer behaviour (Defra, 2011b: 2) noted: “*While the review included 60 sources that touch on product lifetimes in some way, only a few provide comprehensive explorations of consumer attitudes and behaviour. The most useful evidence comes from work by Professor Tim Cooper and colleagues (on appliances and electronics) and by Fisher et al. (on clothing, for Defra).*” Previously the House of Lords Science and Technology Committee (2008) had invited Cooper to present oral evidence at its enquiry into *Waste Reduction* (prior to his current NTU appointment); this was reflected in the report’s recommendations.

WRAP has recently begun to address **product lifetimes of electrical goods and clothing** and has commissioned research from Cooper, Fisher, Townsend and colleagues at NTU. This work builds on a report on resource efficiency and climate change which utilised data from Cooper and affirmed his theoretical assertions that efficiency may not lead to sustainable consumption because of the rebound effect and that relative obsolescence was of greater significance than technical failure (WRAP, 2009). Cooper’s research findings have also been utilised by NGOs in developing policy (Friends of the Earth, 2012).

NTU’s research has had a particular impact on government policy relating to clothing, which was chosen by Defra in 2007 as one of ten products for which ‘sustainable road maps’ were to be created. Our study for Defra (Fisher et al., 2008) was cited in the *Sustainable Clothing Action Plan* progress report (Defra, 2011c: 7) as having informed industry stakeholders. Staff subsequently undertook several projects on clothing for WRAP working with companies such as Superdry, Monsoon and Primark who sit on its Design Working Group. The Evidence Base report for *Valuing our Clothes* (WRAP, 2012) acknowledged Cooper as specialist consultant and staff also worked on projects on design and on a Longevity Protocol to support **industry efforts to increase clothing lifetimes**. This latter work is too recent for changes in production or sales to be measured, but industry engagement provides evidence of the practical impact of earlier research.

The reach of the underpinning research is evidenced by invitations (i) to participate on United Nations, European Commission and UK Government expert panels and to attend associated workshops, (ii) to write chapters for two Council of Europe reports and *The Handbook of Sustainable Design*, and entries for the *Encyclopaedia of Consumer Culture*, and (iii) to make keynote presentations at events led by bodies such as the Design Research Society, International Solid Waste Association and the Chartered Institution of Wastes Management.

The significance of the research is that it has provided a systematic mapping of potential government measures to influence the life-span of consumer goods and **thereby improved awareness and understanding of government bodies, industry and other organisations**. This policy field, largely neglected for the past 30 years, has latterly gained importance in the context of a UN agreement by governments to develop policies on sustainable consumption and production and EU policy on waste reduction.

5. Sources to corroborate the impact

Defra (2011a) *Government Review of Waste Policy in England*

<http://www.defra.gov.uk/publications/files/pb13540-waste-policy-review110614.pdf> (see testimonials for corroboration)

Defra (2011b) *Public Understanding of Product Lifetimes*, report by Brook Lyndhurst for Defra.

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=17254> (numerous references)

Defra (2011c) *Sustainable Clothing Roadmap Progress Report*.

<http://www.defra.gov.uk/publications/files/pb13461-clothing-actionplan-110518.pdf> (page 7)

ERM (2011) *Longer Product Lifetimes*, report for Defra.

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=17047> (pp 13, 22, 36)

Friends of the Earth (2012) *Mining for Smartphones: the true cost of tin*,

http://www.foe.co.uk/resource/reports/tin_mining.pdf (pp 24, 25, 27)

House of Lords Science and Technology Committee (2008) *Waste Reduction*, Session 2007-08.

<http://www.parliament.uk/business/committees/committees-archive/lords-s-t-select/waste-reduction/> *Volume I* (pp 22, 53, 58, 60), *Volume II Evidence* (Oral pp 40-50; Written pp 38-40, 51-52; Other pp 223, 237).

WRAP (2009) *Meeting the UK climate change challenge: The contribution of resource efficiency.* [http://www.wrap.org.uk/sites/files/wrap/Final%20Report%20EVA128_SEI%20\(1\)%20JB%20SC%20JB3.pdf](http://www.wrap.org.uk/sites/files/wrap/Final%20Report%20EVA128_SEI%20(1)%20JB%20SC%20JB3.pdf) (pp. 33, 36-38, 41).

WRAP (2010) *Securing the Future of Resource Efficiency.* <http://www.wrap.org.uk/sites/files/wrap/FULL%20REPORT%20v2.pdf> (p. 39).

WRAP (2012) *Valuing our Clothing: the Evidence Base* <http://www.wrap.org.uk/sites/files/wrap/10.7.12%20VOC-%20FINAL.pdf> (Acknowledgements)

Individual users / beneficiaries' corroborating statements:

1/ Team Leader: Sustainable Products and Supply Chains, Defra

"Certainly when we were doing the research project (a study on product lifetimes) his evidence from his work fed into that... Tim's one of the first people on the list as soon as you started to look at people doing work on product lifetimes... it contributed to evidence for our policy..."

"We need to have a Waste Prevention Programme and there are decisions about what the review policy should say... the work on product lifetimes has influenced those things and Tim's work has influenced the work on product lifetimes."

2/ President, International Solid Waste Association

"The work that he has been doing on lifetime cycles of domestic products and other items has actually been incredibly useful in the context of the work that the International Solid Waste Association has been doing..."

"Very definitely his influence has been felt with regard to discussions that have taken place in associations and advisory groups with regards to where we as the UK should be going... If you look at the Chartered Institution of Wastes Management and the special interest group on waste prevention... his work has been mentioned on numerous occasions in the discussions."

3/ Head of Programme Resource Efficiency in Products and Services, WRAP

"Tim has had a significant impact on our understanding on what opportunities there are to reduce the environmental footprints of clothing and in turn, through the work we have published, it has influenced other people in the sector in terms of their understanding... He did a very good job in converting our objectives into operational questions and so the consequences of that is that that work fed into a major publication, Valuing Our Clothes ... Tim's played an important role in making sure we asked the right questions and got the right evidence... the evidence has helped to catalyse action within the sector..."

"(The) Sustainable Clothing Action Plan brings all the major players together, and... the work that Tim's been involved in, the durability work, is primarily through the working group on product design. In terms of (the) Government's policy approach to the impact of clothing, it is all determined through the Sustainable Clothing Action Plan. So, in terms of policy delivery for the clothing sector, this is the major channel, this is the focus, this is where the knowledge lies, this is where Government looks for the evidence of what to do, so in that sense, in terms of Tim's work feeding through this, yes, it does influence Government thinking..."

"I was looking just this morning at a draft from Defra around their development of the Waste Prevention Plan... Tim's work is directing a key strand within that; yes, it is informing policy."

4/ Director, RGR Ltd

"(We were) commissioned to deliver a future trends report in waste and resources management... We set to it by arranging some small symposia... with a series of presentations and reactions and Tim contributed to a couple of those, both as a presenter and as a participant... Tim would always be on our list of folks to have round the table for things like that... because of his expertise in product life extension and his ability also to look ahead at potential consumption trends and... the conceptual model."