

SHAPING SUSTAINABLE FASHION

changing the way we
make and use clothes



edited by
**ALISON GWILT &
TIMO RISSANEN**

earthscan
from Routledge

SHAPING SUSTAINABLE FASHION

changing the way we make and use clothes

EDITED BY ALISON GWILT & TIMO RISSANEN

earthscan
from Routledge

First published by Earthscan in the UK and USA in 2011

For a full list of publications please contact:

Earthscan

2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

711 Third Avenue, New York, NY 10017

Earthscan is an imprint of the Taylor & Francis Group, an informa business

All material except as noted below copyright © Alison Gwilt and Timo Rissanen, 2011

Copyright © individual authors as listed on Contents page (p.04) for their respective contributions, 2011

Published by Taylor & Francis.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, except as expressly permitted by law, without the prior, written permission of the publisher.

Notices

Practitioners and researchers must always rely on their own experience and knowledge in evaluating and using any information, methods, compounds, or experiments described herein. In using such information or methods they should be mindful of their own safety and the safety of others, including parties for whom they have a professional responsibility.

Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

ISBN: 978-1-84971-241-5 Hardback

978-1-84971-242-2 Paperback

Typeset by Amy Common | Sai Designs www.saidesigns.com.au

Cover design by Rogue Four Design www.roguefour.com

Cover illustration by Amy Common | Sai Designs www.saidesigns.com.au

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data

Gwilt, Alison.

Shaping sustainable fashion : changing the way we make and use clothes / Alison Gwilt and Timo Rissanen.
p. cm.

Includes bibliographical references and index.

ISBN 978-1-84971-241-5 (hardback) -- ISBN 978-1-84971-242-2 (pbk.) 1. Fashion design. 2. Textile design. 3. Sustainable design. I. Rissanen, Timo. II. Title.

TT507.G95 2010

746.9'2--dc22

2010032968

In Memory of Ronald William Mason

CONTENTS

5	<i>List of Figures</i>
7	<i>Acknowledgements</i>
8	<i>List of Contributing Authors</i>
11	<i>Foreword — Amy Rosser</i>
13	Introduction from the editors

Chapter 1 Source

17	Introduction
19	1.1 Remediation: Discussing Fashion Textiles Sustainability — Joan Farrer
35	1.2 Case Study: Upcycling Materials for Fashion
39	1.3 Case Study: New Materials for Fashion
43	1.4 Sustainable Textiles – Nature or Nurture? — Marie O’Mahony

Chapter 2 Make

57	Introduction
59	2.1 Producing Sustainable Fashion: The Points for Positive Intervention by the Fashion Designer — Alison Gwilt
75	2.2 Case Study: The Tailor’s Craft
79	2.3 Case Study: The Perfect Solution
83	2.4 Zero-Waste Design Practice: Strategies and Risk Taking for Garment Design — Holly McQuillan

Chapter 3 Use

99	Introduction
101	3.1 Sustainable Clothing Care by Design — Kathleen Dombek-Keith and Suzanne Loker
119	3.2 Case Study: Slowing Fashion
123	3.3 Case Study: Personalizing Fashion
127	3.4 Designing Endurance — Timo Rissanen

Chapter 4 Last

141	Introduction
143	4.1 Textile Recycling Options: Exploring What Could Be — Jana Hawley
157	4.2 Case Study: Reuse in the Fashion Cycle
161	4.3 Case Study: A New Future Fashion Industry
165	4.4 Post-growth Fashion and the Craft of Users — Kate Fletcher
177	<i>Case Study Designer Profiles</i>
180	<i>Resources</i>
183	<i>Editors’ Biographies</i>
184	<i>Index</i>

LIST OF FIGURES

25	1.1.1	Fashion and textile supply chain
26	1.1.2	ReDress – ‘T series’ dresses by Kim Fraser
29	1.1.3	Hooded jacket and dress by Angie Finn
30	1.1.4	Conscience Clothing shoot, showing garment miles to New Zealand and related carbon footprint
34	1.2.1	Romance Was Born, <i>Renaissance Dinosaur</i> S/S 2010
34	1.2.2	Romance Was Born, <i>Renaissance Dinosaur</i> S/S 2010
36	1.2.3	Romance Was Born, <i>The Garden of Eden</i> , with Del Kathryn Barton 2008
38	1.3.1	Experimenting with light responsive woven material and encapsulated within a polyamide monofilament double cloth channel, photographed under UV light
40	1.3.2	Free standing installation consisting of panel woven with spun silk and light responsive elements, tensioned over frame with concealed UV light.
41	1.3.3	Close-up stills from projected light transition showing gradual colour change on woven textile from warm to cool stripes
44	1.4.1	Recycled wool carpet and jute from LaRoche
48	1.4.2	The laser sintering process from Freedom of Creation (FOC)
50	1.4.3	Grado Zero Espace’s Vectrasil hybrid yarn
51	1.4.4	Environmental packaging from Mambo
52	1.4.5	Fashion Technology: The Rip Curl Project 2009, Sydney, Australia. Example from student Tara Savi presents the material separated, layered, bonded and fringed
61	2.1.1	The five phases of fashion design and production
66	2.1.2	Influencing change across the production process: Journey of an ornate sleeve
68	2.1.3	Linking sustainable strategies with the process of design and production
70	2.1.4	Mark Liu, MA graduation collection 2007
71	2.1.5	Alabama Chanin Spring 2010. Hand-stitched dress in 100 per cent organic cotton with Anna’s Garden appliqué
74	2.2.1	Stages of a bespoke jacket

76	2.2.2	Bijan Sheikhlary at work
78	2.3.1	Reaching for higher standards by engaging people in an open and transparent way
80	2.3.2	Luxury Redefined, from UK knitwear company John Smedley / Better thinking Ltd
88	2.4.1	Initial tessellation idea
88	2.4.2a	Reducing tessellation design
90	2.4.2b	One possible garment design from tessellation
92	2.4.3	Design in progress, showing established fixed areas in yellow
94	2.4.4	Hoody/T-shirt embedded design; pattern, line drawing, rendering of possible digital print colourways
103	3.1.1	Laundry as a System of Systems
108	3.1.2	Green Clothing Care (GCC) label
110	3.1.3	The Uniform Project series
113	3.1.4	'Suit yourself' modular/updated suit designs
118	3.2.1	Portrait of Dr Gene Sherman
120	3.2.2	Issey Miyake 'PLEATS PLEASE', pleated polyester jacket, Autumn/Winter 1999
121	3.2.3	Gene Sherman's collection notebook, Sydney, Australia 1999.
122	3.3.1	The Brown dress project series
124	3.3.2	For 365 days Alex Martin wore the same brown dress
130	3.4.1	Fisherman's coat from Awaji Island from the collection of the Hokudan Town Historical and Ethnographic Museum, Japan
133	3.4.2	Endurance shirt by Timo Rissanen, 2009
134	3.4.3	Pattern layout for Endurance shirt, 2009
137	3.4.4	Shredded Marimekko T-shirt by Outi Pyy, 2010
145	4.1.1	Baled used textiles (sweater)
146	4.1.2	Women cutting buttons off used sweaters to make blankets
148	4.1.3a	Blankets being made from used sweaters for IKEA
148	4.1.3b	Warp beam of yarns made of used sweaters
152	4.1.4	Junky Styling. VD Mac
156	4.2.1	The clothing donation bank of The Smith Family organisation in Sydney
158	4.2.2	The recycling process of collecting, sorting and distribution at The Smith Family organization in Sydney
160	4.3.1	Wonderland at London College of Fashion
162	4.3.2	Detail, Wonderland spider flowers
167	4.4.1	Edward
167	4.4.2	Yvonne
168	4.4.3	Andy
173	4.4.4	Ever-growing cycles of production and consumption
173	4.4.5	Steady-state economics



ACKNOWLEDGEMENTS

7

We wish to thank our authors Joan Farrer, Marie O'Mahony, Holly McQuillan, Kathleen Dombek-Keith, Suzanne Loker, Jana Hawley and Kate Fletcher for sharing their valuable insight and knowledge. We would also like to thank the following designers and researchers who have contributed to the case studies; Luke Sales and Anna Plunkett at Romance Was Born and Rae Begley at Little Hero; Jennifer Shellard; Bijan Sheikhlary; Mike Betts and Mark Holt at Better thinking Ltd; Dr Gene Sherman, Executive Director of the Sherman Contemporary Art Foundation; Leonie Jones at the Powerhouse Museum; Alex Martin; Delores D'Costa at The Smith Family; Helen Storey. In addition we would like to thank the many designers, researchers and companies who supplied us with images of their work.

We also wish to thank: Michael Fell, Claire Lamont and Anna Rice at Earthscan for their support; our production team in Sydney, Amy Common and Deborah Turnbull for their commitment and enthusiasm for the entire Fashioning Now project; Tania Creighton and Holly Williams, curators at the UTS gallery in Sydney, Jonathan James for exhibition design in Sydney and Jasmin Stephens at the Fremantle Arts Centre, for staging the Fashioning Now exhibitions; staff at the School of Design at the University of Technology Sydney and Parsons The New School for Design.

Finally, we would like to thank Ian and Dylan, and George for their continued love and support.

This project has been assisted by the New South Wales Government through its Environmental Trust.

LIST OF CONTRIBUTING AUTHORS

JOAN FARRER has 32 years commercial fashion, textiles, branding and research and development expertise with international industrial retailers, institutions and non-governmental organizations (NGOs) in design, manufacture and policy development. Her vanguard Royal College of Art (RCA) PhD in 2000 concentrated on global supply chain analysis, discussing economic, social and environmental production (sustainability). Current research is focused on Sustainable and Smart solutions with transdisciplinary collaborators. Farrer's academic roles include Director MA Fashion, Senior Research Fellow, Director Research Lab, Associate Professor and Reader.

MARIE O'MAHONY is Professor of Advanced Textiles for Fashion Design at University of Technology, Sydney (UTS) and Visiting Professor at University of the Arts, London. Her role at UTS is divided between research and teaching, the latter including setting up a new Masters course. She has worked for a number of years as a consultant with clients including Hussein Chalayan, and curated exhibitions for the Stedelijk Museum and British Council amongst others. She has written and co-authored a number of books including the TechnoTextiles series and is currently working on a new book to be published with Thames and Hudson in 2011. She is a member of the Australian Government's Textile, Clothing and Footwear Industries Innovation Council (TCFIIC).

8

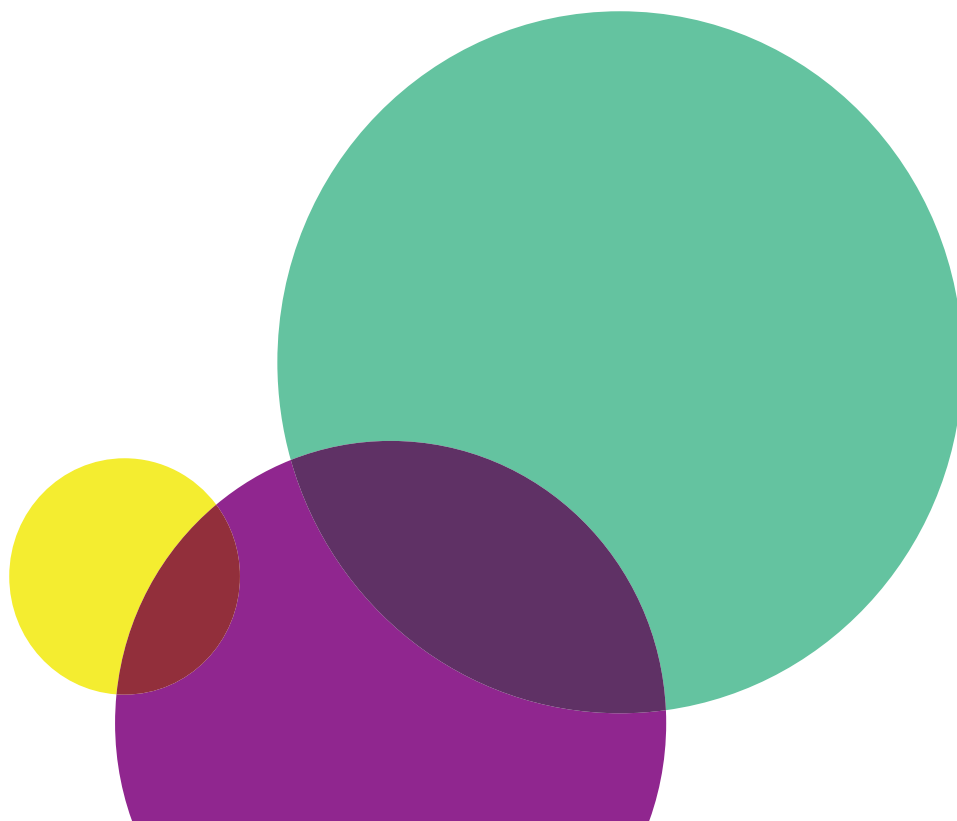
HOLLY MCQUILLAN is a lecturer in design at Massey University, College of Creative Arts in Wellington, New Zealand with a BDes and MDes in Fashion Design. Her research focuses on sustainable design practice within a contemporary material culture framework with a particular interest in production and consumption systems within the fashion world. Using innovative drape and garment creation techniques she explores new ways of making and consuming clothes that have been exhibited in galleries internationally.

KATHLEEN DOMBEK-KEITH earned an MA degree in apparel design at Cornell University, and her master's thesis, 'Re-Fashioning the Future: Eco-Friendly Apparel Design', was recently published. Her research focuses on reducing the environmental impacts of clothing, specifically laundering and materials, and fostering meaningful relationships between wearers and their clothing through innovative design approaches. She is currently a lecturer in the Department of Apparel Merchandising and Interior Design at Indiana University, Bloomington.

SUZANNE LOKER is a Professor Emerita in the Department of Fiber Science and Apparel Design at Cornell University. She has published widely on innovative business strategies in the apparel industry, specifically those involving socially responsible practices, and body scanner and mass customization technologies. She recently co-authored the book, *Social Responsibility in the Global Apparel Industry*, with Drs Marsha Dickson and Molly Eckman. She earned her BS and MA degrees in apparel design at the University of Wisconsin-Madison and Syracuse University, respectively, and her PhD degree in educational psychology at Kansas State University.

JANA HAWLEY is Professor and Department Chair of Textile and Apparel Management at the University of Missouri. She is currently President of the International Textile and Apparel Association. Hawley's scholarship focuses on textile recycling but she has also published in the areas of e-commerce and the Old Order Amish. Hawley is a Fulbright Scholar to India and a Global Scholar to Thailand. Her work in sustainability has gained her international recognition including work in Greece, India, Italy and South Korea. She serves on the Board for the Council of Textile Recycling.

KATE FLETCHER is a sustainable designer, consultant, writer and key opinion leader in fashion, textiles and sustainability. Her work – in academia, with high street retailers and NGOs – has been at the forefront of design for sustainability in fashion and textiles for the last 15 years. It has roots in ingenuity, vitality, care and resourcefulness and is fed by design ideas and practical action. Kate holds a PhD from Chelsea College of Art and Design, is Reader in Sustainable Fashion at London College of Fashion and the author of *Sustainable Fashion and Textiles: Design Journeys*.



FOREWORD

Education is a key component of the New South Wales (NSW) Government's commitment to foster sustainable development. Education is a vital tool because it helps people to understand the nature and complexity of environmental challenges and builds their capacity to take appropriate action. The NSW Government's Learning for Sustainability 2007-2010 plan calls on all sectors to play their part in building a learning society, one in which we are all informed and active contributors to creating a more sustainable future. Within the fashion industry, *Shaping Sustainable Fashion: Changing the Way We Make and Use Clothes* has achieved this by teaching us how we can match sustainability and fashion in a unique, contemporary and diverse way.

The Environmental Trust, an independent statutory body established by the NSW government, funds projects like the University of Technology Sydney's *Fashioning Now* project, from which this book originates. Supported by the NSW Environmental Trust's Environmental Education programme, Fashioning Now has delivered an array of enlightening learning methods, including sustainability workshops, symposiums and exhibitions featuring innovative research projects from Australian and international practitioners that investigate fashion and sustainability. All of this knowledge has been pulled together in this publication to disseminate the vast range of sustainable solutions currently being explored by designers, researchers and manufacturers.

This book is certainly a step forward in changing the face of a fashion industry that is characterized by a high level of waste among manufacturers and driven by a fast-paced cycle of seasonal products. *Shaping Sustainable Fashion* raises awareness of the problem of textile waste, and gives consumers and designers the opportunity to learn how to work sustainably through solutions on waste avoidance, waste management and resource recovery. Additionally, by holding both consumers and designers accountable, *Shaping Sustainable Fashion* demonstrates the importance of making informed choices for the environment.

Shaping Sustainable Fashion's lessons on how to 'source, make, use and last' should be explored and shared by designers, researchers and consumers alike to make for a more sustainable and ethical fashion industry.

— Amy Rosser

The Environmental Trust

Department for Environment, Climate Change and Water NSW

INTRODUCTION FROM THE EDITORS

Alison Gwilt & Timo Rissanen

Shaping Sustainable Fashion explores the issues of fashion, sustainability and specifically the way in which fashion clothing is produced, used and discarded. Today the fashion industry relies on the fast and efficient manufacture of new seasonal trend-driven products for an identified consumer in a competitive marketplace. The continued cycle of buying, using and disposing of fashion clothing is based upon a system of production that has serious consequences for our society and the environment. The trend for fast fashion has generated an exponential rise in the sale of fashion garments that are often worn too little, washed too often and quickly become discarded, with an estimated 30kg textile waste per person reaching UK landfill each year (Allwood et al, 2006). Moreover, while this trend is typically associated with garments available in the high street, it seems that at all levels of the fashion industry there continues to be a focus on the production of market driven and disposable goods. The intention of this publication is to bring to light a multiplicity of sustainable strategies that are being employed to reduce the textile waste generated during the manufacture and use of fashion clothing.

Within the book we present a diverse set of approaches to sustainability that are currently being discussed within design practice, yet at the same time we have embraced ideas that present promising scenarios for a future fashion industry. These discussions are intended to generate dialogue and debate. In fact our aim for the book is not to provide definitive answers but to question current methods of design practice and offer alternative scenarios that challenge how garments are produced and used. Fashion is often perceived negatively in terms of sustainability and yet one of its inherent qualities is innovation and the search for new solutions. We aim to reveal the various innovative ways in which fashion designers, makers and users are refashioning fashion for a sustainable future.

Although there is an increasing universal awareness of environmentalism and ethical issues, we recognise that the field of sustainable fashion can appear complex. Fashion designers and consumers are often confused by the language of sustainability and professional resources sometimes do not make it clear how people can connect with methods of best practice, creating barriers for engagement with sustainability. In light of this problem the book follows a lifecycle approach, from a design perspective, and divides academic papers and case studies into four distinct sections: *Source*, *Make*, *Use* and *Last*.

Source takes a look at the complexities associated with the sourcing and manufacturing of sustainable fashion materials and products in a globalized industry. This section explores the environmental and social impacts associated with the production of materials and garments, and in particular the significant affect that products and processes have on our natural resources. Crucially, the chapter reiterates the need for designers and consumers to make informed choices. The *Make* section focuses on the production of fashion clothing and in particular the role and influence that the fashion designer can have in changing the current practices applied within the manufacturing process. *Make* surveys the production methods applied in a number of sectors of the fashion industry, and highlights positive approaches and sustainable strategies that can be applicable and adaptable to other levels of the industry. Within the *Use* section we discuss the positive contribution that the consumer can have on the lifecycle of a fashion garment; in particular we explore the schemes that can engage the consumer to slow fashion consumption. Highlighting the way in which the consumer engages with fashion, through the selection, use, washing, care, repair and disposal of a garment remains as critical as those contributions made by the producers of fashion. Finally, in the section entitled *Last* we investigate alternative systems and approaches that may reduce the amount of clothing contributing to landfill waste. We reveal the system of textile recycling and of the reuse of waste materials into new products, and we suggest other diverse strategies that challenge the speed and significance of fashion in a changing technological and cultural landscape.

Some of the sustainable strategies that are being explored within the sections of this book range from slow fashion, product/service systems, designing for waste minimization and end-of-life strategies. We have attempted to illustrate the extensive range of possibilities available in sustainable fashion practice in addition to established thinking about fashion that is produced with organic or recycled materials. Moreover, we have been keen to reveal fascinating examples that may not fit traditional notions of sustainable fashion but nevertheless make a strong case for new, improved practices.

For the case study components of the publication, we draw on research projects from international creators and researchers who were engaged in an Australian fashion project, *Fashioning Now* (2009), which comprised an exhibition, industry symposium and a project website. The symposium drew attendees from across Australia and New Zealand, from educational institutes, government and NGOs, and the fashion industry. This suggested that there is a significant thirst for knowledge about environmental and social issues in relation to the production and consumption of fashion clothing across a broad spectrum of people. The *Fashioning Now* project received assistance from the New South Wales Government through its Environmental Trust, and it has kindly provided the Foreword for this text.

Shaping Sustainable Fashion intends to demonstrate to fashion and textile design students, fashion designers in industry and fashion consumers that through the act of designing and the use of responsible patterns of consumption, textile waste can be avoided and reduced. The fashion industry needs to positively respond to the view that developing garments at the best possible price is not the only way to conduct business, especially when there continues to be a growth in public interest for environmentally friendly and ethically produced goods. Our vision for the future of fashion is one where all fashion is considered sustainable, making it entirely unnecessary to label it so. And in so doing, reaching a point where society perceives fashion design and production as an inherently positive facet of our culture.

Allwood, J. M., Laursen, S. E., Malvido de Rodriguez, C. and Bocken, N. M. P. (2006) *Well Dressed? The Present and Future Sustainability of Clothing and Textiles in the United Kingdom*. Institute for Manufacturing, University of Cambridge, Cambridge





SOURCE

Chapter 1

SOURCE | INTRODUCTION

This chapter explores the complexities associated with the sourcing and manufacturing of sustainable fashion materials and products in a globalized industry. Sourcing within the fashion supply chain is typically associated with business: budgets and deadlines, purchasing and selling, shipping and supplying. This is complicated further with the interdependent relationships between supplier and designer, designer and maker, maker and seller, seller and user, all of whom are connected to a product that is often determined by price, quality and speed.

Designers play a significant role in the development of new fashion products and they can lead the selection of materials and services used within the production process. A designer may need to locate fabric suppliers, trimmings suppliers, textile dyers and finishers, manufacturers for sample runs, and so on. But what are the ethical and environmental dilemmas that arise as a consequence of this decision-making? Most designers or product developers would probably admit that they do not question the production processes involved in developing a fabric or recognize what negative environmental and social impacts may be associated with a fabric during the manufacture, use and disposal of a garment. This unquestioning approach is typical and perhaps understandable since a company's interest in or time available for research into sustainable fibres, materials and processes may be minimal. This then raises the question of how a designer should select materials and choose services.

Building a relationship with a responsible and well-informed supplier can alleviate some of these concerns. The knowledge shared through this trusted association can be pivotal in assisting the designer. As suppliers communicate the sustainability credentials of a fabric, or a service, the designer becomes empowered through knowledge. Undeniably designers need to better familiarize themselves with the materials and processes that they use and promote in the production of fashion. Fashion fabrics go through a number of production processes from growing or manufacturing fibres and yarns, through to the dyeing and processing of fibres into fabrics. However, few designers would recognize the negative impacts of a fabric that are felt through the entire lifecycle of the garment, beyond fibre and textile production through to garment manufacture and disposal. Coming to terms with this fact will provide the designer the opportunity to reduce negative impacts whilst at the same time maximizing positive impacts; this should be the fundamental goal.

Joan Farrer ponders the idea of achieving sustainability in a global fashion and textiles industry as a utopian ideal. Farrer discusses the significance of the sector in relation to people, while highlighting the physical impact of the industry on the environment. By drawing together solutions for a more sustainable fashion industry Farrer also raises the need for a change in mindset by consumers, manufacturer and retailers. Meanwhile, Marie O'Mahony explores the issue of materials and the argument relating to water usage in the production and care of natural and man-made fibres. In comparing the benefits and drawbacks of both types of fibres and materials O'Mahony poses the thought that the future of materials may lie in hybrid combinations, particularly if water becomes increasingly short in supply.

JOAN FARRER

1.1 REMEDIATION: Discussing Fashion Textiles Sustainability

Remediation: (noun) acting as a remedy or solution to a problem; in this case the use of remedial methods to improve learning skills to reverse social and environmental damage.

19

INTRODUCTION

This essay will review the idea of fashion (and by association textiles) sustainability to establish if it is a utopian ideal by looking at the triple bottom line in business relating to 'people, profit, planet'. To begin to answer this question, in the first instance, it is essential to define what sustainability is or is not in this clothing context. For the purpose of this discussion, sustainability will be explained in terms of its current principles relating to the social, economic and environmental consequences of our behaviour as consumers. This essay seeks to explain the significance of the fashion and textiles sector and its importance in relation to our cultural and emotional connection to clothes. This will include historical and contemporary consumption patterns (people), assessing the importance of the global industry driving macro and micro economies (profit), and outlining the physical impact this industry has, and is having, on the environment (planet). In this chapter Joan Farrer, whose doctoral thesis on these issues (Royal College of Art, London, 2000) is celebrating its tenth anniversary, sets out to clarify the core ideals of sustainability, in particular in relation to fashion and textiles, in light of the modern zeitgeist. The objective will be to review some key solutions that may offer a remedy to the current situation in order to move towards the apparent contradiction of a more sustainable fashion industry. Examples include recent research that profiles upcycling and re-manufacture (Fraser, 2009), design for source local/sell local (Finn, 2008) and her own work in smart technological solutions for producers, retailers and consumers (Farrer and Parr, 2008). A model of 'remediation' is explored as a potential way to provide the most up-to-date solution to what remains a critical issue for the fashion and textiles industry.