



# Packaging Sustainability

Tools, Systems, and Strategies  
for Innovative Package Design

Wendy Jedlička, CPP

**With:**

*Dr. Elise L. Amel, Dr. Dayna Baumeister, Arlene Birt,  
Jeremy Faludi, Terry Gips, Fred Haberman,  
Dan Halsey, Garth Hickle, Dr. Christie Manning,  
Tim McGee, Curt McNamara, Jacquelyn Ottman,  
Dennis Salazar, Dr. Pamela Smith, Dion Zuess*

*Environmental Paper Network, Eureka Recycling,  
Package Design Magazine, Packaging Strategies,  
Sustainable Packaging Coalition<sup>SM</sup>*

**Additional contributions by:**

*Amelia McNamara, John Moes, Tom Nelson,  
Holly Robbins, Sharon Sudman*



**WILEY**

John Wiley & Sons, Inc.

This book is printed on acid-free paper. ©

Copyright © 2009 by John Wiley & Sons, Inc.  
All rights reserved

Published by John Wiley & Sons, Inc.,  
Hoboken, New Jersey

Published simultaneously in Canada

Select portions of the glossary that appear in Chapter 7 are reprinted with permission of John Wiley & Sons, Inc. from *The Wiley Encyclopedia of Packaging Technology*, 2nd Edition.

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, scanning, or otherwise, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 646-8600, or on the web at [www.copyright.com](http://www.copyright.com). Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at [www.wiley.com/go/permissions](http://www.wiley.com/go/permissions).

Limit of Liability/Disclaimer of Warranty: While the publisher and the author have used their best efforts in preparing this book, they make no representations or warranties with respect to the accuracy or completeness of the contents of this book and specifically disclaim any implied warranties of merchantability or fitness for a particular purpose. No warranty may be created or extended by sales representatives or written sales materials. The advice and strategies

contained herein may not be suitable for your situation. You should consult with a professional where appropriate. Neither the publisher nor the author shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages.

For general information about our other products and services, please contact our Customer Care Department within the United States at (800) 762-2974, outside the United States at (317) 572-3993 or fax (317) 572-4002.

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books. For more information about Wiley products, visit our web site at [www.wiley.com](http://www.wiley.com).

### Library of Congress

#### Cataloging-in-Publication Data:

Jedlicka, Wendy

Packaging sustainability : tools, systems and strategies for innovative package design / Wendy Jedlicka.

p. cm.

Includes bibliographical references and index.

ISBN 978-0-470-24669-6 (pbk.)

1. Packaging. I. Title.

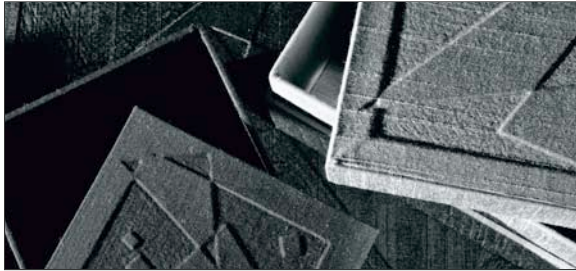
TS158 .J44

688.8—dc22

2008013183

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1



## Contents

<b><i>Introduction</i></b>	<b><i>vii</i></b>
HOW TO USE THIS BOOK	ix
THE MAKING OF THIS BOOK	x
GIVING THANKS	xi
BIOGRAPHIES	xi
<b>CHAPTER ①</b>	
<b><i>Taking the First Step</i></b>	<b><i>1</i></b>
<b>Consumption and Renewal</b>	<b>2</b>
<b>Choices, Choices, Choices</b>	<b>2</b>
Underconsumption	4
Overconsumption	5
Restorative Consumption	6
<b>Nearly All New Products Fail</b>	<b>8</b>
<b>What Does Change Look Like?</b>	<b>9</b>
What Is Sustainability?	10
What Sustainability Is Not	10
Tearing Down the Tower of Babble	11
The Next Great Era of Design	12
How to Avoid Change	14
It's the Other Guy's Problem	16
<b>Taking Responsibility and Thriving</b>	<b>17</b>
Precautionary Principle	17
Hanover Principles	20
Kyosei	21
The Caux Round Table	22
The Triple Bottom Line	24

<b>Transparency and Honesty</b>	<b>28</b>
<b>Ceres</b>	<b>28</b>
<b>A Taste of Things to Come</b>	<b>32</b>
<b>Making the Business Case</b>	<b>32</b>
<b>Packaging and Sustainability</b>	<b>34</b>

## CHAPTER ②

### ***The Mechanics of Human Behavior*** **41**

<b>Chapter Themes</b>	<b>42</b>
Sustainability	42
Attention	42
Zone of Acceptability	42
Expression of Individuality	42
<b>Assumptions vs. Data</b>	<b>42</b>
<b>Inside the Consumer</b>	<b>43</b>
What's in Our Hearts	
(Or How We Don't Think)	43
What's in Our Minds	
(Or How We Do Think)	45
Other People (Or How Sensitive	
We Are to Social Cues)	50
Barriers to Action	55
<b>The Nitty Gritty of Collecting Data</b>	<b>57</b>
<b>Wrapping It Up</b>	<b>58</b>

## CHAPTER ③

### ***Marketing and Truth*** **61**

<b>The Consumer Relationship</b>	<b>62</b>
Empowering the Consumer	62
Does the Selling Price Really Tell the Story?	63
Packaging Can Only Make Them Buy Once	64
Brand Loyalty	65
<b>Ethics-Based Marketing and Business</b>	<b>65</b>
Social Justice and Marketing	66
Co-op America's Basics of Fair Trade	70

## Contents

<b>Package as Bridge or Barrier</b>	<b>71</b>	<b>The Scope of Global Trade in Packaging</b>	<b>119</b>
What Is “Good” vs. “Great” Packaging?	71	Trade in Manufactured Packaging	119
Encouraging Consumer Choice	72	Trade in Packaging Materials	123
<b>Thing or Service?</b>	<b>74</b>	Trade in Waste Materials	123
<b>Eco-Labeling and Eco-Marketing Claims</b>	<b>74</b>	Summary of Facts on Packaging Trade	125
Nutrition Facts Panel for a Healthier Planet	75	<b>The Scope of Environmental Impact of Packaging</b>	<b>126</b>
Carbon Labeling	77	The Economics of Environmental Externalities	126
<b>Speaking the Truth, and Meaning It</b>	<b>78</b>	The Role of Government Policy	126
TerraChoice: Six Sins of Greenwashing	82	Optimal Policies	127
FTC Green Guides	83	<b>Looking Forward</b>	<b>129</b>
<b>How to Get It Right</b>	<b>99</b>		
What Is “Need”?	99		
Who Are the People Buying?	99		
Moving Target	102		
Timing Is Everything	103		
<b>The Package/Product Team</b>	<b>103</b>		
<b>How to Create an Eco-Package in Three Easy Steps</b>	<b>104</b>		
<b>CHAPTER ④</b>		<b>CHAPTER ⑤</b>	
<b><i>Laws and Economics</i></b>	<b>107</b>	<b><i>Systems Thinking</i></b>	<b>133</b>
<b>The Changing Landscape:</b>		<b>The Systems View</b>	<b>134</b>
<b>Laws and Regulations</b>	<b>108</b>	Universal Principles	135
Producer Responsibility	108	<b>Bridging the Gap with Systems</b>	<b>139</b>
Why Producer Responsibility for Packaging?	110	Systems Properties	140
Producer Responsibility in the European Union	111	<b>Systems and Design</b>	<b>140</b>
<b>Regulations Around the Globe</b>	<b>112</b>	<b>Package as a System</b>	<b>141</b>
Producer Responsibility in the United States	112	<b>Adapt to the Environment</b>	<b>142</b>
Producer Responsibility in Asia	112	<b>Properties of Systems</b>	<b>143</b>
Producer Responsibility in Canada	113	Boundary	143
Producer Responsibility in Australia	114	Function	146
<b>A Path Forward</b>	<b>115</b>	Feedback and Interchange	148
<b>Unwrapping Global Packaging:</b>		Levels	149
<b>Trade and Policy</b>	<b>116</b>	<b>Taking Advantage of the Systems View</b>	<b>150</b>
The Scope of Globalization in Packaging	116	The Package/Product Team	151
The Global Magnitude of Packaging	117	Team Learning and Decision Making	151
The Global Supply Chain and Materials Markets	117	Design Language	154
The Global Purposes of Packaging	117	Using Systems Thinking in the Design Process	157
The Global Laws Affecting Packaging	118	<b>Biomimicry</b>	<b>158</b>
		Contain	158
		Protect	161
		Communicate	164
		Mimicking Deep Principles	166
		Go Outside!	168

<b>Permaculture Principles in Design</b>	<b>169</b>	<b>Plastics</b>	<b>235</b>
Passive Permaculture Principles	170	Nonrenewable Plastics	235
Proactive Measures	172	Biobased/Renewable Plastics	237
Progressive Measures	174	<b>Metals</b>	<b>243</b>
<b>Change Management</b>	<b>177</b>	Aluminum	243
<b>Technical Approaches</b>	<b>181</b>	Steel	243
Industrial Ecology	181	If It Can't Be Grown, It Must Be Mined	244
Design Practice	183	<b>Glass</b>	<b>251</b>
ISO 14000	184	<b>Energy Changes Everything</b>	<b>252</b>
Life Is Cycles	185	Understanding Energy	254
The Eco-costs Approach	187	Carbon Accounting	255
<b>Systems Approaches</b>	<b>189</b>	<b>Printing</b>	<b>257</b>
The Sustainable Packaging Coalition <sup>SM</sup>	189	<b>The Wonderful World of Waste</b>	<b>261</b>
The SPC Approach	191	The Economic and Environmental	
Definition of Sustainable Packaging	191	Benefits of Recycling	261
Design Guidelines from the SPC	192	Greenhouse Gas Emissions and Waste	262
The Natural Step Framework	197		
<b>The Next Level in the Picture</b>	<b>200</b>		
o2's 5Rs of Great Design	201		
The Wal-Mart 7Rs	204		
Cradle to Cradle <sup>SM</sup>	205		
Product Design Perspectives	212		
<b>Your Nearest Advantage May Be Behind You</b>	<b>215</b>		
<b>Innovation Heuristics</b>	<b>217</b>		
Design Rules	217		
The Basics of Innovation	217		
Ecological Design Principles	218		
Design Mindfulness (Thackara)	219		
Design Approaches	220		
<b>CHAPTER ⑥</b>		<b>CHAPTER ⑦</b>	
<b><i>Materials and Processes</i></b>	<b>223</b>	<b><i>Innovation Toolbox</i></b>	<b>267</b>
<b>Paper or Plastic? Neither!</b>	<b>224</b>	<b>Eco-Packaging In Three Easy Steps</b>	<b>268</b>
<b>What Are We Trashing?</b>	<b>226</b>	<b>Definition of Sustainable Packaging</b>	<b>268</b>
<b>Paper</b>	<b>229</b>	<b>Consumer's Shopping List for</b>	
Wood-Based Paper	229	<b>Positive Change</b>	<b>269</b>
Why What's In Your Paper Matters	230	<b>Innovation Heuristics</b>	<b>269</b>
<b>Alternative Papers</b>	<b>232</b>	<b>Fair Trade Essentials</b>	<b>275</b>
		<b>Overview of Environmental</b>	
		<b>Marketing Claims</b>	<b>276</b>
		<b>Eco Seals, Certifications, and Claims</b>	<b>277</b>
		<b>Materials Choices at a Glance</b>	<b>283</b>
		<b>Eco-Resources at a Glance</b>	<b>284</b>
		<b>Glossary of Basic Packaging Terminology</b>	<b>288</b>
		<b>SELECT BIBLIOGRAPHY</b>	<b>320</b>
		<b>NOTES BY CHAPTER</b>	<b>324</b>
		<b>INDEX</b>	<b>336</b>