



# THINKING GREEN **PACKAGING PROTOTYPES 3**

EDWARD DENISON & GUANG YU REN





DESIGN FUNDAMENTALS

# Packaging Prototypes 3

Thinking Green

'We are in the midst of a basic paradigm shift in science, from the metaphor of the machine to the metaphor of the living organism'.

David Korten, *The Post Corporate World*

A RotoVision Book  
Published and distributed by RotoVision SA

RotoVision SA, Sales, Editorial & Production Office  
Sheridan House, 112/116A Western Road  
Hove, East Sussex BN3 1DD, UK

Tel: +44 (0)1273 72 72 68  
Fax: +44 (0)1273 72 72 69  
Email: [sales@rotovision.com](mailto:sales@rotovision.com)  
[www.rotovision.com](http://www.rotovision.com)

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10 9 8 7 6 5 4 3 2 1

ISBN 2-88046-560-5

Photography by John Suett

Systems diagrams by Edward Denison  
Designs diagrams by Guang Yu Ren

Production and separations in Singapore by  
ProVision Pte. Ltd.

Tel: +65 334 7720  
Fax: +65 334 7721



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# INTRODUCTION

Throughout our relatively short existence, humankind has utilised a vast array of forms and devices to contain goods. Packaging fulfils a wide range of functions surrounding the products and produce we want and need, including safe transportation, preservation and portioning, as well as providing a platform for information about weight, content and nature of the product. Whether it is our ancestors' use of leaves to wrap wild berries or contemporary sophisticated methods of containing spent nuclear fuel, packaging is the means by which we aim to fulfil a wide range of needs centred on product protection. Such a diversity of needs outlines the importance and intricacy of packaging as an integral system in a complex web of systems that we employ to sustain the lifestyles that we choose to lead. The dilemma humankind presently faces is that our unsustainable lifestyles are so threatening the environment that has forever sustained us, that our very existence within this environment is now far from assured. Nature's experiment with humankind might not only prove to be unfit for our species, but unimaginably devastating for the other species sharing this planet.

One could argue that humankind has always been unsustainable and has always afforded the luxury of being able to choose the easiest evolutionary path by moving onto 'greener pastures'. Our predicament in the 21st century, however, is quite simple. There is nowhere left for us to go. We have, at last, reached the outer limits of our physical evolutionary development and thus are now just beginning to come to terms with the

physical confines of the planet on which we have been provided life for so long. Globalisation, in all its guises, is certainly not so threatening as simply to symbolise the limits of our physical growth, while opening up the boundless potential of the cooperative human spirit. A radical reorientation of emphasis is needed if we are to be assured of a sound future on this planet. To attain this new emphasis requires a paradigm shift in our current thinking. It is not a question of seeking to hinder what humankind can do or currently does, but rather rethinking the reason for and the way of doing almost everything. Instead of seeking the most for ourselves as individuals, we might do better by relearning the idea of the systems perspective. The paternalist paradigm that has supported domination and Newtonian reductionism must be replaced by a more cooperative, inclusive and sympathetic systems approach that applies to all things on earth if we are not to invite our own extinction. Above all else, this might be the greatest challenge facing humankind, as we prepare for the rapid and inevitable transformation that has the potential to destabilise our own species and perhaps that of all known life in the universe.

Such a change of thinking cannot be expected to arrive in an instant. Humankind's capacity for change is far from effective. Our instincts have taught us to resist change, fearing the loss of comfort and stability provided by existing practices, no matter how devastating these might be to our health and the health of the planet. This is why we find some industries resisting change, as they

persevere with practices that continue to bring harm. Literature from one industry representative body in the US still states that 'contrary to public opinion, there is plenty of inexpensive landfill space available, significantly reducing the cost of disposal in some areas'. Change, although always unavoidable, is always incremental.

This book was conceived at a time regarded by many as being a period of change in environmental perception among the general public. A period of time in which our environmental concerns have become less significant. The broader picture, however, might suggest something very different indeed. Understanding of environmental issues has reached a critical stage of development within the public realm. This period of environmental 'awakening' might now be seen as drawing to a close. It might be remembered as a period of consolidation for the myriad of issues and complex, often contradictory information that we received regarding the state of our environment during the 1960s through to the late '80s. We are now in a period of response whereby we should be implementing that which we have learnt in order to achieve a quality of life that is not in any way detrimental to the environment around us. It is therefore of great importance that those extolling the virtues of a 'greener' way of life do so with simplicity and guidance.

This is one aim of this book, which offers a wide range of samples in the field of packaging that have in some way helped reduce the environmental burden caused by our current unsustainable living. Each sample cannot possibly provide all the necessary solutions to all the inevitable problems, but rather each might be seen as a step in the right direction. They have been chosen for daring to change and for making a significant improvement on what came before them – daring to think differently and rethink the boundaries of design, manufacturing and distribution to produce better results for all parties, no matter what their goals.

Each design therefore must not be seen in isolation from its own context, but part of the

process of refining and improving our capacity to reduce environmental impact. This book does not provide rigid, prescriptive solutions to individual packaging problems, but is one facilitator among many in a long and complex process of change that we need to encourage. The samples are not chosen on their own separate merit, but on their capacity to embrace a systemic approach to environmental problems. It would be wrong, therefore, to assume that the positive attributes of one sample could not be utilised in a completely different field of design, manufacturing or distribution. In the light of systems thinking it is precisely this wider, more open-minded approach that leads to more effective design innovations. This, indeed, must be the essence of design: problem solving at the highest level of systemic thinking. Without this view, our solutions too often only serve to create greater problems elsewhere. It is time to rethink our approach to design so that at no point in the life or death of any of the things we create do we permanently degrade, exploit or abuse the state, well-being or health of any other life form.

Though this might not be totally true of many designs featured in this book, all can be seen as a start. For many, this might be seen as one point from which to begin. Much ground has been covered before us and so there is plenty from which to draw inspiration and guidance. Although packaging is far from being that which will drive us to the brink, it is highly symbolic of the wasteful lifestyles that we lead and an integral piece of the system on which we currently rely for our living. Therefore in this light it could, along with so many other things, be regarded as the 'straw that broke the camel's back'. To ensure that this does not happen is vital for humankind, for without the environment all else is impossible. The genius we have acquired in areas as diverse as space technology, genetic engineering, medical science, microbiology, nanotechnology and information technology, along with all our financial and political institutions will all be lost if we do not first learn how to preserve the environment.

'The fight against pollution cannot be successful if the patterns of production and consumption continue to be of a scale, a complexity, and a degree of violence which, as is becoming more apparent, do not fit into the laws of the Universe, to which man is just as much a subject as the rest of creation.'

E.F. Schumacher, *Small is Beautiful*, p.247



# THE RISE OF ECOLOGICAL CONSUMERISM

Though the principle of packaging has changed little over the centuries, in recent decades its role has greatly increased in scope and complexity, along with global trade and consumption. These developments have seen the role of packaging grow from being a largely functional product requirement to an intensely heterogeneous and sophisticated industry. This accelerating developmental trend is likely to have a significant impact both for society in general and for the design profession. For society, increasingly globalised production and manufacturing will necessitate further advances in transportation and logistics, while the nature of consumption processes are changing the way we carry out commerce – with the onset of e-trading, for example. The designer will experience an increasingly complex and also multidisciplinary field in which to practice, requiring greater flexibility and crossdisciplinary awareness and interaction with other professions.

These changes may be seen as a continuum of many evolutionary trends that, for the packaging industry, have forged major transformations to keep apace with contemporary consumer demands and legislative requirements. Few recent trends in the industry have had such a significant impact as those in the domain of environmental responsibility.

The discernible evidence of increasing environmental degradation due to industrial malpractice in our quest for development has intensified the need for greater accountability and responsibility from industry. Perhaps no other industry has faced such public scrutiny as that of packaging. The visual impact of discarded packaging and mounting piles

of waste together with our daily interaction with over-packaged products, makes the packaging industry an easy target as a significant contributor to the increasing degradation of the environment. Packaging, as litter, imparts considerable guilt on the consumer, as it reminds us how much we discard, and, as a potent symbol of our 'throw away' culture, it should serve as a constant reminder that things could, and should, be a lot better. After a decade or so of emerging self-reflection, there are signs that suggest we may be on the cusp of significant change.

The consolidation of early consumer environmental awareness throughout the late 1960s and early 1970s bore some fruit by the 1980s. These decades were marked by a significant arousal of environmentalism in popular youth culture and academia. In addition to the horrors of war and famine being broadcast into our homes, there also



Clearcutting of Canada's temperate rainforest, Vancouver Island, 1997 (above). Image courtesy of Greenpeace.



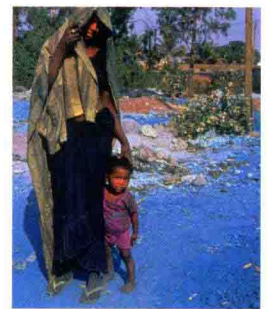
Illegally exported German toxic waste dumped in an apple orchard in Sibiu, Romania, 1992 (left). Image courtesy of Greenpeace.



appeared something deeply wrong with the natural world that we had inherited. The very environment on which we depend was bearing the brunt of our failure to live peacefully and cooperatively. Despite these early flourishes of environmental consciousness, it was not until the late 1980s, following a period of significant global economic prosperity, that the general public finally awoke to the signs of widespread environmental destruction and a broad questioning of prevailing consumerist lifestyles. Our opulent lifestyles were being blamed for emerging ecological catastrophes such as deforestation, the greenhouse effect and ozone depletion. Such signals could no longer be ignored and the ecological agenda became firmly etched in economic, political and social ideology.

India; Exxon Valdez oil spilt off the coast of Canada; the creation of the ozone hole occurred; and reckless fishing techniques became widespread – these could all be seen as the inevitable consequence of humankind's unmitigated desire for development, whatever the cost.

The local consequences of economic demands were, at the same time, becoming apparent globally. Entirely new scientific diagnoses of catastrophic environmental problems were being brought to the public's attention and provided the public with identifiable consequences and prognoses of their irrepressible activities. Emerging media networks, that left no stone unturned, broadcast these disturbing scenes across the globe. Consumers were no longer able to turn their backs on the



Family living on dye waste dump in Vapi, India, 1996 (above). All images courtesy of Greenpeace.

Clean-up after Exxon Valdez oil spill in Alaska, USA, 1989 (left).

Dead sperm whale trapped in an illegal Italian drift net in Mallorca, Spain, 1993 (facing page).

Western societies reeled in the fallout caused by their own avarice, as a string of major environmental catastrophes in the space of a decade underlined the severity of the world's environmental problems. Droughts occurred on a scale never previously experienced, as millions died in famines in the Horn of Africa; the fallout from the nuclear disaster at Chernobyl reinforced our naivety in dealing with this potentially catastrophic method of harnessing energy; logging of the world's rainforests together with continued burning of fossil fuels was threatening the balance of carbon dioxide in the atmosphere causing global warming; forests and waterways were being destroyed from acid in unregulated industrial emissions; chemical spills killed and injured thousands such as at Bhopal in

consequences of their consumption. The world finally woke to the calls from nature that something very serious was wrong.

Early forecasts suggested that these damaging activities needed to be significantly changed if we were not to alter irreversibly the systems through which the earth provides life. Such activities are fuelled by unrestrained development, founded on and promoted by economic rationalism, which remains the driving force of the capitalist system in place for over three centuries; three centuries in which our overriding perceptions have been moulded by a Newtonian, mechanistic, view of the world, a world in which all things operate as clockwork, where the whole is no more or no less than the sum of its parts.



By understanding the individual parts it was thought that humankind could gain dominion of the whole. By placing such a disproportionate significance on material wealth for the fulfilment of the individual, other equally important factors such as spiritual development, care for the environment and care for one another have been systematically ignored. Indeed, anything that cannot be deemed economically viable is deemed unsustainable or irrational.

The pace of change that occurred in the early 1990s was swift in accommodating the increasingly stringent demands of a new, 'eco-friendly' consumer. Companies began producing packaging made from recycled materials; entirely new product lines were conceived, based on this new environmental consciousness; individual products and materials were hounded if they did not conform to this new methodology. Chlorofluorocarbons (CFCs) were banned as a propellant in aerosol cans; PVC began to be dismissed for its leaching of chemicals; chlorine-bleached paper was overshadowed by the natural shades of new 'recycled' papers; rainforest hardwood timber for furniture or as a construction material was considered as distasteful as fur clothing; opposition to drift-net fishing forced tuna packaging to bear the seal of dolphin friendliness. Consumers were, for the first time, being exposed to the complexities and contradictions of the environmental agenda. The realisation was dawning that we were part of the problem as well as being empowered to provide the solutions. Although more a matter of perception, 'green' issues were no longer confined to the realm of the eccentric hippy. Environmental concerns were at last reaching the mainstream. People were not only buying green, they were voting green. Public opinion finally reached a critical mass that forced the environmental agenda onto the international political platform with unprecedented popularity.

These sentiments manifested themselves in the 1992 Rio Earth Summit – the first ever meeting of global heads of state to address the mounting global environmental crisis. The world's industrial nations were called upon to clean up their act or face the consequences of environmental collapse. Since then, subsequent gatherings have proven largely impotent and illustrate the power of industry over the democratic process.

Unfortunately these sentiments were brief; the products often failed to satisfy the environmental criteria they claimed to fulfil, and the political promises fell short further still. However, the seed was sown for greater developments in critical

environmental theory and for a greater underlying awareness of the implications of our lifestyles.

'Think globally, act locally' became the popular rallying call of this era.

The packaging industry made significant changes to the way in which it had operated previously. Entire product ranges were forced to change in very short spaces of time. For example, the abolition of CFCs necessitated entirely new methods of packaging and dispensation of liquid products. These early legislative requirements may be seen as both the cause and effect of technological improvements that have persistently provided greater efficiencies in packaging, such as light-weighting, the use of composite materials, more effective recycling and improved design. These efficiencies not only benefit



'To bring it down to the basic concept, we must build up areas liberated from the industrial system. That means, liberated from nuclear weapons and from supermarkets. What we are talking about is a new social formation and a new civilisation.'

J. A. Palmer, *Fifty Key Thinkers on the Environment*, p.269

the packaging waste stream and reduce its environmental impact, but they also pass on considerable economic benefits.

The mutual benefit to long-term environmental consequences plus long-term economic outcomes can be seen as a significant and ongoing success for the packaging industry. It is vital, therefore, that the momentum established by these early environmental successes are not lost to subsequent waves of economic and consumer rationalism. In the field of packaging, the designer, as creator and innovator of new concepts and environmentally responsible products, must remain diligent in ensuring that the footprint left by current practices does not prevent future societies from receiving the same benefits and standard of lifestyles that we assume today.

The environmental footprint of most Western countries still remains far from sustainable. It is estimated that even in relatively small and 'green' countries such as the Netherlands, their footprint requires a landmass 14 times their size to satisfy domestic consumption (W.E. Rees, see Bibliography). The UK still landfills 150 million tonnes of waste each year (equating to nearly 3 tonnes per person), of which at least 3 million tonnes is recoverable packaging waste (from INCPEN, see Useful Addresses). Humans produce more than three times the sulphur dioxide and more than twice the nitrogen dioxide that is produced by natural processes (P.M. Vitousek, see Bib). These figures alone prove that the lifestyles we lead and the processes required to maintain and support them are leading us towards an uncertain and even tumultuous future.

## THE CALL FOR AN EVOLUTIONARY SYSTEMS PERSPECTIVE

Concern for the environment, as has been briefly illustrated, can hardly be regarded as a contemporary theory. Many societies throughout history have managed their environment with impeccable devotion, with some proving more successful than others. The Aborigines are one of the most successful of these. Having survived for 40,000 years managing and adapting their environment with enduring diligence, they can perhaps be regarded as the true masters of sustainable living.

In contrast, contemporary Western societies might be regarded as anything but sustainable. In a comparatively short space of time we have come from the grasslands and forests as humble hunter-gatherers to become the most developed and complex societies on earth. This accelerating pace of change is an important feature of our journey through time and increasingly challenges our abilities to cope with complexity. Such accelerated development has arrived at a cost, as we now face systemic collapse of the many life-supporting systems that have for so long provided us with nutrients, shelter and security. Coping with this increasing complexity can be seen as one of the key challenges of our time.

It comes as a worrying reminder, therefore, that when modern societies come in contact with the ancient and enduring cultures of the world, we do

little to enhance or improve their evolutionary potential. The evolutionary conclusion facing the Aborigines of Australia is no exception. This is not to suggest devolution back to our hunter-gatherer roots is required. In fact quite the opposite is true. If we learn from evolutionary systems theory, it is understood that just two outcomes are obtainable from an evolutionary juncture – one extending towards progress and increasing complexity, leading to greater evolutionary development, the other leading us to stasis and devolution, leading eventually to systemic collapse. Without the capabilities of dealing with complexity we appear to be heading for the latter.

Many would argue that today our globalised society is at this juncture. It is up to us as a highly advanced and conscious species to choose the path we wish to take and ensure that our designed responses to the challenges we face are both appropriate and enduring. It is we and we alone who have created an abundance of social and environmental problems, and therefore solutions can only come from us.

The reality for us is that if we were to come through this process having learnt to deal better with such insurmountable challenges, we face the very real possibility of achieving further evolutionary development, bringing greater



understanding, forbearance and cooperation. This transcendent path has always moved in the direction of higher levels of order and self-definition. A newly coalesced society forged within the confines of our own global boundary might be better suited to deal with these higher order problems facing our species and those with whom we share this planet. Globalisation in this light is certainly a desirable and inevitable process, but can only work effectively when all essential systems are sustainable and a greater degree of equity exists amongst these systems.

'What has this to do with packaging?' This will become clearer, but the complexities surrounding packaging and the many arguments for one form over another often detract from the fundamental principle at stake. This calls for a need to focus our

will achieve lasting success in the form of sustainability, rather than focusing on shorter-term goals which are likely to cause greater problems over time.

Economic rationalism is inextricably tied up in contemporary, reductionist thinking. With its goals founded on the objective of increased profit, it makes little economic sense to 'care' for our environment – or indeed for anything – not at least until it threatens not to sustain life any longer. By this stage it is often too late to implement practical measures aimed at solving problems. There is a need to redress this imbalance and understand that economics is a vital and valid part of the web of life that humankind has created, but only in balance with the myriad other things in life, such as politics, ecology, sociology, psychology, creativity and

'System science can look at a cell or an atom as a system, or it can look at the organ, the organism, the family, the community, the nation, the economy, and the ecology as systems, and it can view even the biosphere – the Gaia system – as such. A system in one perspective is a subsystem in another. But the systems method always treats systems as integrated wholes of their subsidiary components and never as a mechanistic aggregate or parts in isolable causal relations.' E. Laszlo, *Evolution: The General Theory*

attention more closely and accurately on the problem at source rather than plugging the leaks further downstream. This is the vital point to establish at this stage. This book advocates a systems perspective to view this problem, with evolutionary thinking as a basis from which to seek more enduring and lasting objectives, while also being able to assess the inherent failings of others. An endearing quality of this approach is that it transcends much of what is taken for granted or assumed to be correct simply because it is the norm. Through a clearer understanding of the past we might better identify the patterns and means by which to create a brighter future.

This thinking enables us to look beyond contemporary reductionist thinking, allowing us to view situations with greater clarity and truth. This new perspective, like any new experience, will bring uncertainty, but by adhering to a systems framework, we are given the means to live with and manage uncertainty. With our sights set on such goals we can begin to seek the solutions that

spirituality, that share equal importance. Redressing existing imbalances by fostering other areas of human activity will inevitably be a priority if a more holistic approach is to be sought.

The packaging industry is one microcosm of these larger, higher-order systems that operate in the world. It is a member among the many subsystems that constitute the world in which we live. It therefore carries its own unique responsibility in ensuring that it does not degrade other systems with which it interacts and relies on. Systems thinking does not allow a cessation of responsibility at the boundaries of other subsystems, but rather extends responsibility throughout the entire range of extensive links and chains of interactions between and beyond each component part. This raises important implications for dealing with complexity and managing change. In the context of packaging, a material or process that is seen as preferable to another on an individual level is highly undesirable when the transportation of raw materials, manufacturing