



# Impacts and Opportunities Reducing the Carbon Emissions of CD Packaging

February 2009

**“Rather than [the recession] pushing the environment into a lower order of priority, the environment is part of the solution... We must build tomorrow today... and use the changes we have got to make as a result of the downturn to take the next step towards building a far more environmentally sustainable economy.”**

Gordon Brown, Prime Minister  
January 4 2009

**“My presidency will mark a new chapter in America’s leadership on climate change that will... create millions of new jobs in the process”**

Barack Obama, US President Elect  
November 18 2008



## Foreword

### Tony Wadsworth

Chairman: CD Packaging working group

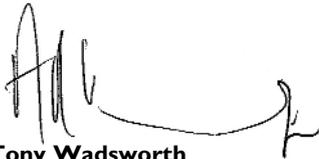
*Before reading this report it is worth remembering why we are doing this.*

*Carbon dioxide levels in the earth's atmosphere are higher than at any time during the last 750,000 years. We are experiencing unprecedented climatic change which will accelerate before it slows down as we pump more CO<sub>2</sub> into our atmosphere than ever before. Our energy infrastructure, based on 200 years of fossil fuel sourcing, has to change rapidly and radically if we are to prevent the globe from warming beyond tolerable levels. Climate change is undoubtedly the most urgent and complex problem of our age and we are compelled to do whatever we can to help solve it.*

*Julie's Bicycle has brought together the UK music industry in an unprecedented show of strength and commitment to undertake joint initiatives that will significantly reduce our CO<sub>2</sub> emissions.*

*This report collects the combined research, expertise, wisdom and goodwill gathered over the last nine months and presents us as an industry – but also as a collection of intelligent, concerned and responsible human beings – with a 95% reduction challenge for CD packaging.*

*I hope we can meet it.*



**Tony Wadsworth**

**Chairman: BPI**

#### *Acknowledgements*

*I would like to thank the following for their outstanding contributions to this research:*

*Firstly my thanks to Alison Tickell who has driven this project with unstinting commitment and vision. Secondly thanks to Catherine Bottrill who wrote the original First Step report and has guided much thinking at all subsequent stages; and to Catherine Langabeer, Helen Heathfield, the research contributors, volunteers and the team at JB, listed later in this document.*

*Heartfelt thanks to Graham Crawshaw for his expertise and outstanding generosity.*

*Also to Geoff Lye and Rachel Stones.*

*Thanks especially to the CD working group: Kim Bayley, David Bryant, Paul Denyer, Justin Morris, Emma Pike, Mandy Plumb, Paul Redding, Simon Robson and Joe Smith; to Paul Firth, David Green and Clare O'Brien; and to Ged Doherty, David Joseph, John Reid, and our chairman Jazz Summers.*

*My thanks to ERA and BPI for providing generous and invaluable financial support, particularly to Kim Bayley for going the extra mile on our behalf, and to the Beggars Group, EMI, Sony BMG, Universal and Warners. Finally I continue to be extremely grateful to the Environmental Change Institute, Oxford University, for expertise and inside knowledge generously given.*

## Introduction

### Professor Diana Liverman

*Despite efforts to address the problems of climate change, global greenhouse emissions have continued to increase. Scientists now suggest that if we do not act soon to make deep cuts in emissions the world could be up to 7°C warmer by 2100<sup>1</sup> with devastating impacts on food, water, health, coastal regions and ecosystems. As we look towards the Copenhagen climate negotiations at the end of 2009 the international community must renew its commitment to avoid dangerous climate change by implementing serious greenhouse gas reductions, protecting forests, funding low carbon sustainable development and helping the vulnerable adapt to climate changes already underway. In the UK, the government has been advised that the Climate Bill should include an 80% emission cut by 2050, and there are hopes that the Obama administration will make similar promises in the US.*

*All sectors of the economy and society will need to contribute to solving the climate problem and the work of Julie's Bicycle to reduce the carbon emissions of the music industry provides an example of how, with good information and great leadership, an industry can identify and implement emission reductions and sustainable practices. This report shows how a shift in packaging can bring a dramatic cut in emissions associated with sales of CDs, and that both the industry and consumers are willing to implement this change. In combining scientific, technical and behavioural analysis we start to see how working together, from supply chains to consumers, we can promote the changes we need to reduce the risks of climate change.*

**Professor Diana Liverman,  
Director, Environmental Change Institute,  
Oxford University**

<sup>1</sup> UK Hadley Centre simulations which look at four alternative emission scenarios ranging from early and rapid cuts (47% global emission cut by 2050 with a 2.1-2.7 C temperature increase by 2100 to a business as usual with a 132% emission increase by 2050 and 5.5 to 7.1 C temperature increase by 2100)  
[http://www.metoffice.gov.uk/research/hadleycentre/news/evidence\\_cc.html](http://www.metoffice.gov.uk/research/hadleycentre/news/evidence_cc.html)

# Executive Summary

In 2007 Julie's Bicycle commissioned the Environmental Change Institute to carry out a study scoping the carbon footprint of the UK music industry, First Step.<sup>1</sup>

This pivotal study recommended that the industry undertake immediate reduction plans for three of its most intensive sources of carbon emissions: venues and office buildings, festival travel and plastic packaging for CDs.

For the live sector Julie's Bicycle has created a set of energy management and measurement tools, provided environmental audits and benchmarks, with further research into festival travel to be published shortly.

For the record industry the First Step report identified CD packaging as the largest direct source of Greenhouse Gas (GHG) emissions, accounting for a third of the recording sector and around 10% of the total emissions from the UK music market.<sup>2</sup>

Julie's Bicycle convened a working group of industry, science and specialist experts under the leadership of Tony Wadsworth, to scrutinise the science and the business of CD packaging and come up with some solutions. The group commissioned leading consultancy Arup to analyse the impacts more closely and produce recommendations for reducing them. In July 2008 Arup produced the report: Reducing the Impact of CD Packaging<sup>3</sup> (Appendix I). It provided a detailed analysis of packaging options and a startling result: that the recording industry could reduce its packaging emissions by up to 95% by switching from the plastic jewel case to pure card.

The JB working group understood that, in difficult economic times science had to be underpinned by a realistic appreciation of business constraints and so two further pieces of research were undertaken, both supported by the Environmental Change Institute.

The first was to identify tolerance levels amongst CD buyers; would people buy card casing in significant quantities or would the industry bear the brunt of unpopular product packaging?

A detailed survey was carried out with ERA (Entertainment Retail Association). We were surprised to find that, not only did the majority of buyers prefer card, but that the appetite for environmentally responsible product, and product labelling, was keen.

Despite the increasing prevalence of card-based product we had no idea of the market readiness, or tolerance levels, of our manufacturing sector so we conducted a second survey with manufacturers. Again we were pleased to discover that manufacturers were enthusiastic about a shift towards environmentally responsible product. In fact, a significant proportion are already investing in reducing the negative environmental impacts of their products.

<sup>1</sup> Bottrill, C et al., Julie's Bicycle First Step: UK Music Industry Greenhouse Gas Emissions for 2007 Environmental Change Institute Oxford University 2008

<sup>2</sup> The summary for Chapter 4 First Step which deals with the recording sector has four main recommendations:

- 1) CD packaging, the subject of this study
- 2) CD distribution logistics: ERA has convened a retail grouping and is developing a strategy to address logistics
- 3) Building energy management
- 4) Digital music delivery and distribution: JB commission 2009

<sup>3</sup> Owen A, Roberts S, Dowdell D, Arup: Reducing the Impacts of CD Packaging 2008, Ove Arup 2008

The interest in sustainability in the UK music industry is growing. It is being driven firstly by the urgent warning voices of our most eminent scientists as they seek to explain profound temperature shifts and consequent weather events. But the voices of artists, audiences and consumers are growing louder, and global issues of energy security, economic downturn, and equal entitlements to natural resources are fuelling a range of climate-related regulatory and voluntary initiatives – initiatives that will inevitably accelerate over the next decade. There is increasing pressure for companies to reduce both their direct greenhouse gas emissions and those of their supply chain.

Julie's Bicycle has developed an **Industry Green** mark which we hope will provide the recognition and environmentally responsible branding that signals to the wider world that the UK music industry has already taken a lead in dealing with climate change.

We are presented with a huge challenge that is morally impossible to ignore. In sheer tonnage of emissions CD packaging is not comparable to heavy industry but in the context of climate change every single low carbon choice makes a positive difference.

Many of the recommendations contained in Arup's July report have been, to a large extent, achieved. However, the biggest opportunity still remains: to make the shift from plastic to card so that our industry standard is high and our collective carbon emissions are brought down – perhaps by 95%. That is an achievement that would exceed the targets being set by governments and one of which we should be tremendously proud.

This document pulls together all the work that has been undertaken since the launch of First Step. The full reports are contained as Appendices but all exist as stand alone research projects.

**Alison Tickell**

Director: Julie's Bicycle

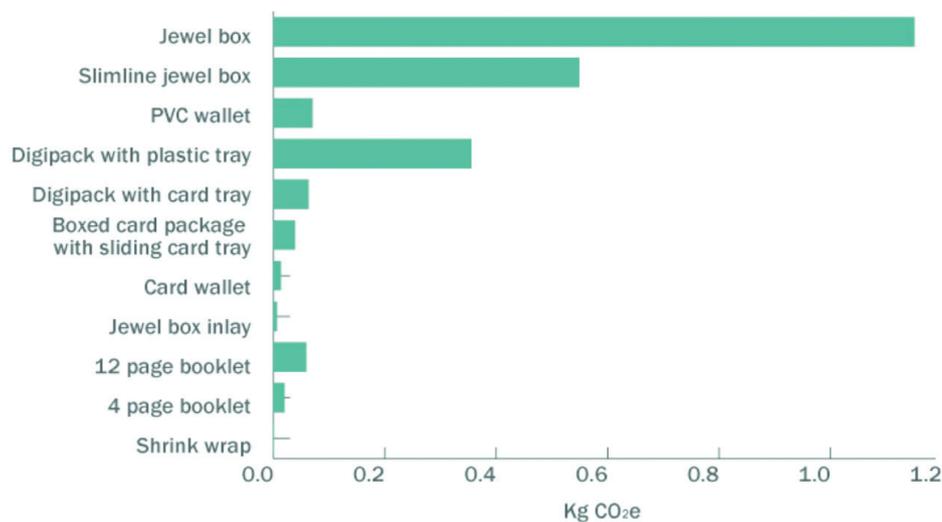
Note: There is a differential between the findings of The First Step report and Arup's report in CD packaging emissions. First Step was a conservative estimate based on best available evidence; Arup used LCA methodology (ie. PE International GmbH-GaBi4) as well as updated emissions factors (ie. Plastic Materials; Association of Plastic Manufacturers in Europe (APNE)). For the purposes of industry overview and the apportionment of percentages across the music industry Julie's Bicycle will maintain the First Step emissions profile but acknowledge that the in-depth GHG analysis by Arup indicates that CD packaging accounts for **at least** 10% of the UK music market's GHG emissions.

# Key Findings

## Emissions

- CD packaging is one of the music industry's largest sources of direct GHG emissions.
- It accounts for a third of the recording and publishing sectors emissions and at least 10% of the total emissions from the UK music market.
- A range of alternatives to the plastic jewel case are already in use.
- Significant reductions in climate change emissions would result from moving away from the jewel case to any of the other forms of packaging analysed in this project.
- The greatest savings come from moving to a pure card option.
- All alternatives are substantially better than the jewel case.
- Moving to a pure card option would reduce greenhouse gas emissions by around 95%.
- Moving to a combined card and plastic option would reduce greenhouse gas emissions by over two-thirds.

### Climate Change Emissions for Different Types of Packaging



Please note: The IG mark applies to the packaging, not the CD itself. The manufacture of a compact disc generates approximately 9% of the emissions associated with the entire CD product as compared to packaging which produces in the region of 34%, and a further 6% with a 12 page booklet.

## Consumers

- More than half of those surveyed (55%) preferred the card wallet version of Coldplay's Viva la Vida (EMI 2008) to the jewel box version.
- Heavy CD buyers are significantly more likely to state a preference for card-based packaging.
- Half of CD buyers (50%) thought CDs should only be sold in environmentally-friendly card-based packaging.
- The majority of CD buyers (73%) stated that the digipack was equal to, better, or much better than the plastic jewel case.
- The majority of CD buyers (75%) agreed that it would be a positive step to shift to environmentally-friendly card-based packing with only 13% disagreeing and 10% not knowing.
- A significant proportion (79%) of CD buyers that stated a preference for the plastic jewel case format said that a change to card-packaging would not make a difference to their decision to buy a CD.
- Almost half of CD buyers (47%) said an environmental accreditation label for packaging would give them a more positive view of the product. A fifth of respondents (19%) thought it might and a third (33%) said it would not make a difference.

## Manufacturers

- All companies surveyed were embarked, or embarking on environmentally responsible initiatives.
- Almost all suppliers surveyed are addressing carbon measurement and are working on initiatives to reduce their carbon footprint.
- All suppliers surveyed responded that they were working towards product weight reduction.
- All suppliers surveyed expressed an interest in a certification system specifically for CD packaging.
- Suppliers were asked to compare environmentally friendly products against the industry standard jewel box, tray, book and inlay in terms of cost, materials, weight, carbon emissions and lead time.
  - a. Cost – premiums reduced as quantities increased. Production quantities below 5,000 units remain prohibitively expensive
  - b. Materials – all products (with exception of digipack) highlighted the elimination of plastic trays. Most board had a high recycled content with other environmental credentials.
  - c. Weight – the environmentally friendly products saw a typical saving of 50% of the weight of a jewel box, tray, book and inlay. Suppliers highlighted the reduced cost of transport.
  - d. Carbon emissions were estimated by suppliers as a 30% to 80% reduction.
  - e. Lead time – all suppliers highlighted that the lead time for alternative packaging was longer.
- All suppliers source their material from within Europe.
- Many suppliers use a high percentage of post consumer waste.
- More packaging is capable of being automatically assembled by the replicator.



# Recommendations<sup>1</sup>

1. **The UK music industry should commit to discontinuing the use of plastic jewel cases and make card-based packaging the industry standard.**
2. **All stake-holders within the UK music industry – artists, managers, record companies, retailers, promoters, manufacturers – have a part to play in supporting the 95% emissions reduction opportunity: shifting from a carbon intensive packaging product to one that demonstrates climate responsibility.**
3. **The UK music industry should collectively agree to reduce its greenhouse gas emissions by percentage targets year on year in line with, or exceeding, international targets. The first target should be a 10% reduction in greenhouse gas emissions associated with CD packaging in the first 12 months starting from a 2008 baseline.**
4. **The UK music industry could consider the other environmental implications of a shift to card, including adaptation of the existing infrastructure to accommodate the effect of climate change, as part of a concerted approach towards climate responsibility.**
5. **The UK music industry should ensure the change has the greatest possible positive impact.** The UK music industry is in a powerful position to catalyse wider action on climate change:
  - **Catalysing wider change in the UK music and associated industries.** A well promoted phasing out of the jewel case that generates positive publicity should help strengthen commitment amongst key players, particularly as an industry wide approach is seen to be beneficial.
  - **Influencing the global entertainment industry.** The UK music industry could use its international position to catalyse similar action on reducing climate change impacts in the global music and wider entertainment industry.
  - **Promoting climate change action by young people.** The music industry has a better understanding of how best to engage young people than most other industries and governmental and non-governmental organisations. The industry should use the shift to card based packaging to promote action on climate change in this key group.
6. **Labels should encourage manufacturers and replicators to focus on assembly automation.** By increasing volumes of card based product there will be improved economies of scale, which will help reduce overall cost.
7. **A card packaging specification should be produced as a template for industry standard packaging.**
8. **An Industry Green mark should be applied to CD packaging that demonstrates evidenced commitment to carbon reduction and environmental responsibility.**

<sup>1</sup> These recommendations amalgamate the three research studies, and have been approved by Julie's Bicycle CD packaging group. Not all the recommendations can be attributed to all contributors.

## List of Contributors

### **Tony Wadsworth**

Tony Wadsworth is Chairman of the BPI and former head of EMI Music. Hugely respected in the industry, in 2008 he was the winner of the prestigious STRAT Award for Outstanding Contribution to the Music Industry. He is a Director of Julie's Bicycle and has steered the CD packaging group for the last nine months.

### **Professor Diana Liverman**

Diana Liverman is Director of the Environmental Change institute, Oxford University. She was recently appointed to the Institute for Environment and Society at the University of Arizona as a member of the new US National Academy of Sciences 'Committee on America's Climate Choices' appointed by the US congress to examine the serious and sweeping issues associated with global climate change, provide advice, and convene a summit in Washington in spring 2009.

Diana has held many senior advisory posts internationally. She is a Director of Julie's Bicycle.

### **Julie's Bicycle**

Julie's Bicycle is a cross industry not-for-profit company committed to reducing the carbon impact of the music industry, and promoting broader sustainable business practices. It was formed in April 2007 and supports industry-wide research initiatives, carbon reduction programmes, audits, energy management tools and accreditation.

### **CD Packaging Group**

The JB CD packaging group was brought together to agree, and support, carbon reduction strategies in the recording industry, specifically focused on CD packaging. It consists of

Kim Bayley: ERA

Catherine Bottrill: Surrey University

David Bryant: Universal

Paul Denyer: Universal

Catherine Langabeer: Julie's Bicycle

Justin Morris: EMI

Emma Pike: Sony

Mandy Plumb: EMI

Paul Redding: The Beggars Group

Simon Robson: Warners

Joe Smith: The Beggars Group

Alison Tickell: Julie's Bicycle

### **Arup**

Arup is a global forum of business consultants, designers, planners and engineers who aim 'to shape a better world'. The company exerts a significant influence on how we reduce and adapt to climate change, through the built environment and other critical aspects of everyday life. Arup are the creative force behind many of the world's most innovative and sustainable designs. Arup has over 10,000 staff working in more than 90 offices in 37 countries.

### **Catherine Bottrill**

Catherine Bottrill was the principle researcher for the First Step Report, UK Music Industry Greenhouse Gas Emissions 2007 (Environmental Change Institute, Oxford University, 2008). She is an expert in music industry carbon measurement and reduction, as well as personal carbon allowances, calculators and labelling.

### **Vishnu Ganglani**

Vishnu Ganglani gained an MSc in Applied Statistics from Napier University, Edinburgh and has worked on a range of public sector projects including for the Scottish Funding Council and Scottish Government. He is currently pursuing a second postgraduate degree at the department of statistics at Oxford University.

### **Graham Crawshaw**

Director, Purchasing for Profit Ltd. With 20 years of purchasing and packaging experience within the music industry, gained in the UK and US predominantly with EMI Music, is working now as an independent consultant.

## Acknowledgements

Julie's Bicycle would like to thank all those many people who have contributed to this work with especially warm thanks to:

Kim Bayley	Paul Firth	Bob Lewis	Yael Parag	Sarah Smith
Catherine Bottrill	David Green	Geoff Lye	Emma Pike	Emma Spicer
David Bryant	Vishnu Ganglani	Susan Lyng	Mandy Plumb	Rachel Stones
Graham Crawshaw	Beth Gooderham	Sarah Moore	Paul Redding	
Paul Denyer	Helen Heathfield	Justin Morris	Sarah Roberts	
David Dowdell	Anica Korte	Clare O'Brien	Simon Robson	
Rose Fernie	Rudra Kapila	Alice Owen	Joe Smith	

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