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## Opportunities for Sustainable Packaging Design: Learning from Pregnancy as a Metaphor

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Current packaging use within fast-moving consumer goods (FMCG) produces a lot of unwanted waste that must be dealt with at significant cost, with negative environmental impacts. In the UK, annually, 10.8 million tonnes of packaging wastes are created; only 24% of plastic packaging is currently recycled (Defra, 2011). Food and drink waste is estimated at 12 million tonnes, producing 20 million tonnes of greenhouse gas emissions (WRAP, 2015). Some FMCG packaging, e.g. Method's refillable bottles or Unilever's detergent tablets (Unilever, 2000), is designed to promote more sustainable behaviour. However, consumers' perceptions, behaviour and habits have been attributed (Porter, 1999) to decreases in packaging value, driving less careful behaviour. The emerging field of design for sustainable behaviour (Lockton et al 2008; Wever et al 2008) can be applied to packaging (Wever, 2009), e.g. influencing littering behaviour (Wever et al, 2006) and refilling (Lofthouse, 2009). However, further knowledge is needed, as designers' intended functions may not match consumers' perceptions and behaviour. Fundamental interconnections need to be articulated, taking a whole system view (Wright & Meadows, 2009). One innovation approach in packaging design involves translating ideas from other domains, e.g. *biomimicry* (Volstad & Boks, 2008), or learning from nature by experimenting with packaging material with mycelium, or edible packaging like WikiCell. This paper, however, suggests translating ideas from *human biology—obstetrics—* through metaphor. How could humans' psychological condition during and after pregnancy, the birth cycle, and caring behaviour be translated into sustainable packaging design? By introducing the pregnancy metaphor (figure 1), this paper will present new ways of considering relationships between consumers, product, and packaging. Metaphorical terms will be defined, based around the idea that: *l* = packaging; *a baby* = the product in packaging. After giving birth, *l* = used packaging; *a baby* = a product to be used/being used (figures 2 and 3). Integrating care philosophy and comparing humans' physiological emotional variation to packaging's life cycle could offer designers triggers for stimulating behaviour change in a more sustainable and responsible way. This is ongoing research; the paper will include example packaging concepts under development applying these ideas. Taking a holistic view of packaging life cycles in this way is an original approach not previously considered in packaging design research. It will contribute to the growing field of behaviour change, and provide resilient design approaches for new sustainable packaging paradigms.