

10 Interpretation and conclusions

There is no significant difference between any of the environmental impacts of the disposable, home use reusable and commercial laundry systems that were assessed. None of the systems studied is more or less environmentally preferable.

The following environmental impacts were agreed by the project board as those to be assessed in the study:

- global warming;
- ozone depletion
- summer smog formation (photo-oxidant formation);
- depletion of non-renewable reserves (depletion of abiotic resources);
- nutrient water pollution (eutrophication);
- acidification;
- human toxicity; and
- aquatic and terrestrial toxicity measures.

The impact burdens for each impact category have been normalised using the average impact burden across the three systems (the average, therefore, has a value of 1). *Figure 10.1* and show the similarity between the systems across all these impact categories using the impact ranges that result from the sensitivity analyses conducted. The variation in impact resulting from the sensitivity analysis is shown as a range for each impact. The analysis does not alter the overall conclusion.

For all three systems, the major impact areas, in terms of scale of contribution, have been identified as non-renewable resource depletion, acidification and global warming.

Although the impacts are very similar, the life cycle stages that are the main source for these impacts are different for each system. For the disposable nappy system, the main sources of environmental impact are raw material production and conversion of these materials into disposable nappy components, for example, fluff pulp and super absorbent polymer.

For the home laundered nappy system, the main source of environmental impact is the generation of the electricity used in washing and drying the nappies. For the commercial laundry system, the main sources of environmental impact are the fuels and electricity consumed by laundry activities.

For all three systems the impacts from waste management do not contribute substantially to the overall totals, although the proportion contributed by waste management is greater for the disposable nappies system than for the two reusable systems.

Global warming and non-renewable resource depletion impacts, over the 2.5 years for which a child is assumed to be using nappies, are comparable with driving a car between 1300 and 2200 miles.

In the UK, there are over 20 million cars on the road. Consequently, the wearing of nappies by children in the UK in one year results in a global warming and non renewable resource depletion impact equivalent to the consumption and emissions of 98,600 cars each driven an average 12,000 miles.

The results of the study suggest that the focus for improving the environmental performance of disposable nappies should be on the disposable nappy manufacturers and their suppliers whereas, with reusable nappies, it is the user who can achieve the most environmental gain through energy efficiency drives in the home:

- disposable nappy manufacturers should focus on weight reduction and improvements in materials manufacturing; and
- reusable users should focus on reducing energy consumed in washing and drying.

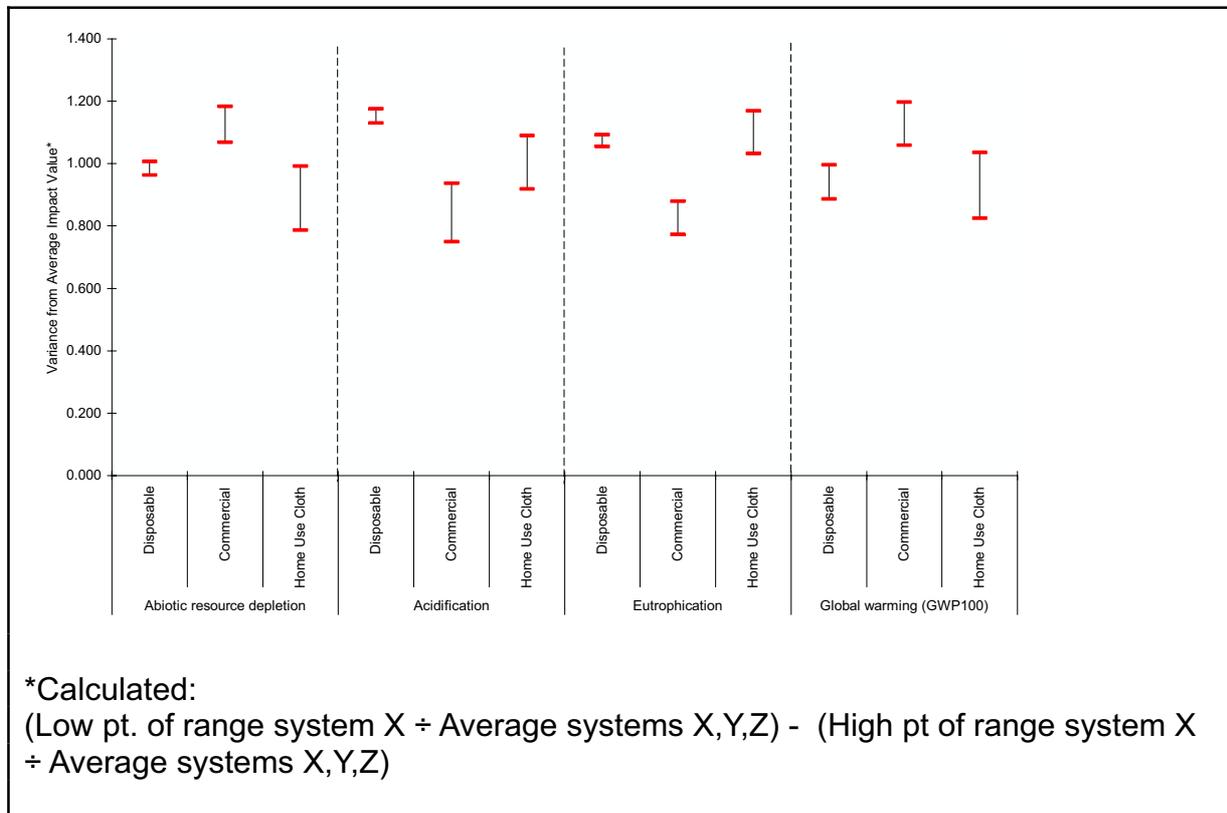


Figure 10.1 Sensitivity analysis of the three systems (normalised using average impact value for all systems)

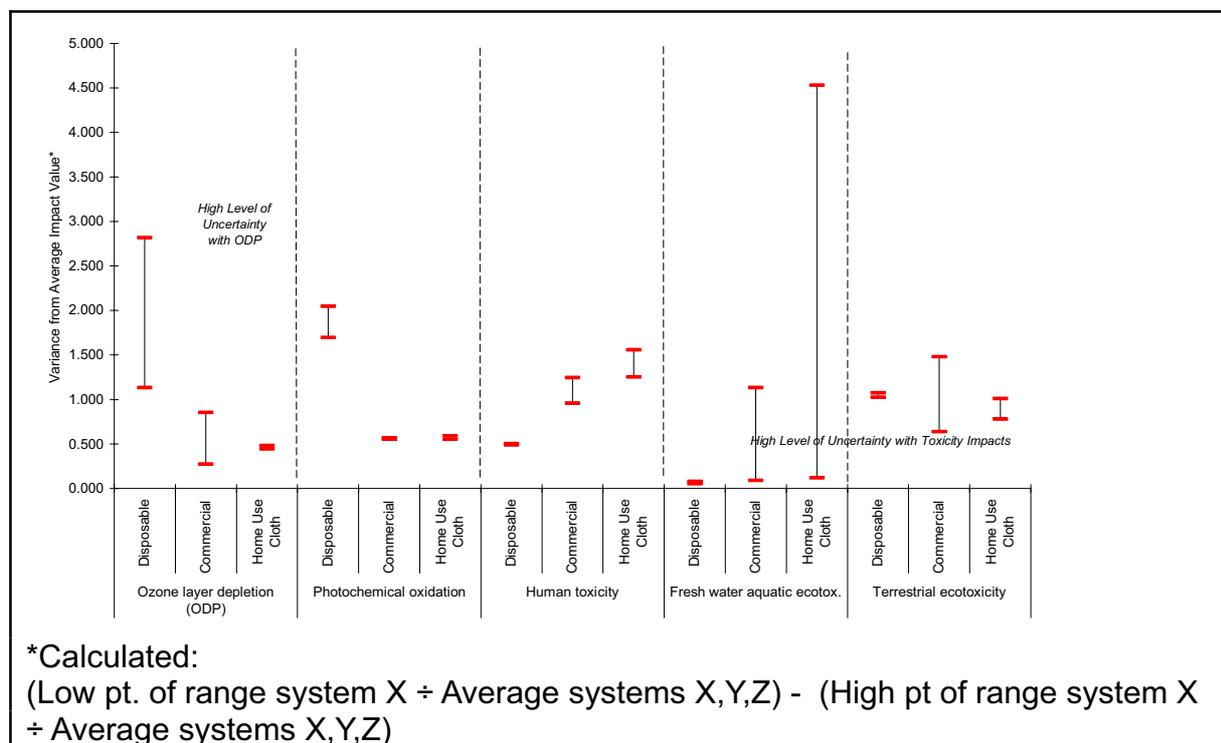


Figure 10.2 Sensitivity analysis of the three systems (normalised using average impact value for all systems)

10.1 Recommendations for further work

The study reports on the performance of the dominant nappy systems in use in 2001-2002. The study does not address what future developments may take place in disposable or reusable nappy systems. However, the study has been supported by a stakeholder group representing the interested parties and is the most comprehensive, independent study of its kind. Therefore, if products which were not studied become dominant in the market, or new products are developed, or changes are made to the existing dominant products which significantly reduce their impacts, then this study should be used as the basis for any further studies comparing the impacts of different types of disposable or reusable nappies.

Although not critical to the conclusions of the work, there are a number of areas where the study would benefit from further analysis and development. These areas were tested through sensitivity analysis in order to determine their significance.

The aquatic toxicity impact assessment method is a developing approach. As further research is published, a more accurate assessment will be possible.

The study could be improved with more data sets for the manufacture of cloth nappies. However, this element of the life cycle is not the main source of environmental impact for the reusable systems.