

# The redesign of Kumasi drinks packaging

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This assignment was done for Kumasi drinks, which is a new start-up company that makes a drink from the pulp of cacao. Kumasi drinks wants to improve the cacao industry and the well-being of the farmers in the cacao industry, whilst having a product that is sustainable for the world. Based on a life cycle assessment done on the product, Kumasi drinks found that 25% of their polluting activities were due to their packaging. Which will be looked into in this paper (see figure 1).

## > Climate change impact per lifecycle stage

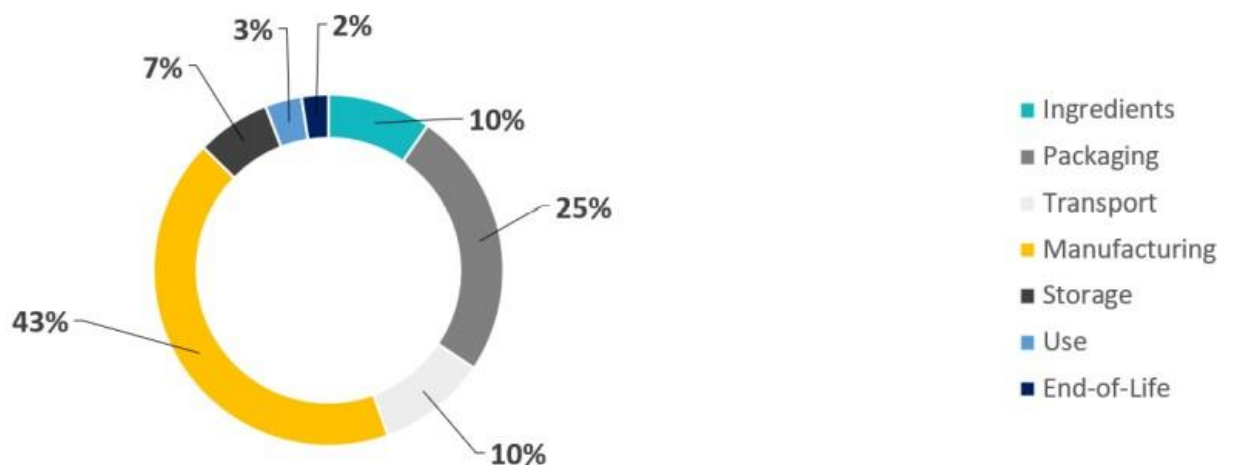


Figure 1. Kumasi drinks impact results.

## Approach

To find a way to be more sustainable, research was done on what Kumasi drinks and its packaging looks like right now, what other soft drink companies packaging looks like and what could be changed to the designs. While keeping certain sustainable factors, GWP (global warming potential), ODP (ozone depletion potential), freshwater ecotoxicity, material properties and life cycle assessments (LCA) as main focus points. From the research, four concepts were created that try to improve the packaging, which were evaluated based on the demands of Kumasi, the assignment and chosen factors. Out of the concepts one was chosen and further developed into a final concept.

## Results

From the research it was found that most soft drink packaging is made of either glass, which Kumasi has right now, PET or aluminium. Where each material has its own advantages and disadvantages. Glass is strong and reusable and completely recyclable, but requires a lot of heat for production. PET is light and easy to recycle, but causes a lot of damage when it ends up in nature or landfill. Aluminium is also easy to recycle and light, but the extraction of the raw material is very polluting.

Based on this and other LCA's done, it was concluded that the optimal material is based on the specific scenario of the product and thus depends on the concept. However, a thing that

could improve the sustainability drastically would be selling the juice separately from the water.

This would change the transport amount, drink amount and weight positively. From which the lolly was assessed as the most beneficial and optimal design concept and further developed (see figure 2). It was found that PP would be the most optimal material for this scenario. The idea is that 100ML concentrated juice will be put in the lolly, which will be sealed using an edible film. The user then puts it in a glass with water and presses the top part, the pressure will make the film pop and mix the juice with the water. After which the lolly can be used as a stirring device and thrown in a recycle bin (see figure 3).

### Recommendations and conclusion

The lolly concept is not yet ready for the market and will need further research on material selection, usability, transportation, life cycle and user demands. The design does improve the sustainability compared to current design, but this doesn't mean that it is a good design. There should still be looked at the results and if Kumasi drinks is content with the amount of pollution due to the new design and factors looked into for the pollution.

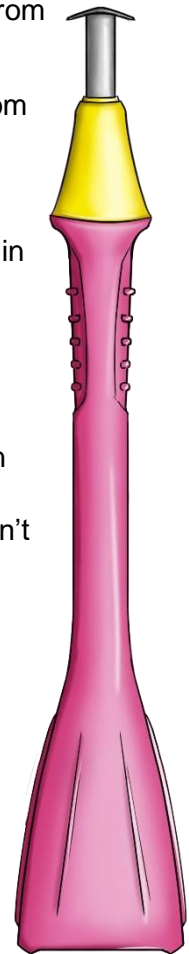


Figure 2. Final design.

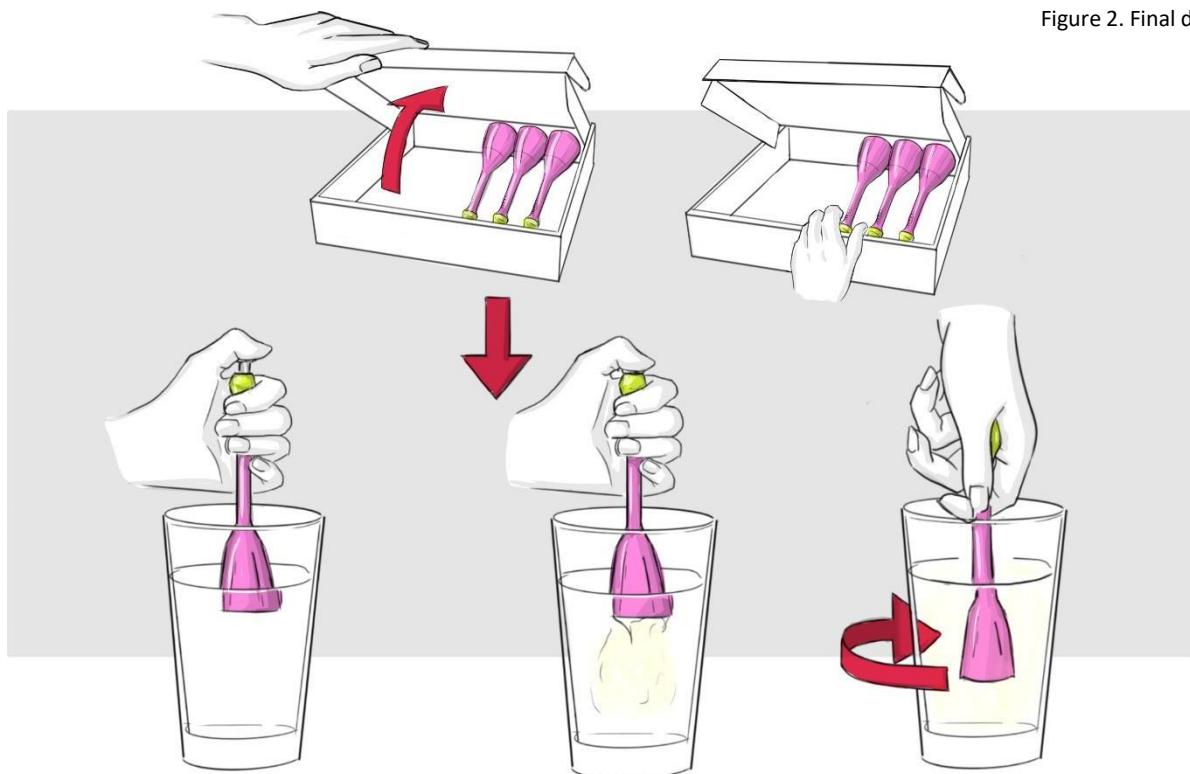


Figure 3. Usage storyboard.