Study of the environmental impacts of alcoholic beverages

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Background

- The Nordic Alcohol Monopolies commissioned a life cycle analysis of alcoholic beverages from 2.-0 LCA Consultants, Denmark in 2015.
- The purpose of the study was to document the total environmental impact of the product portfolio of the Nordic Alcohol Monopolies, expressing the environmental impacts in monetary units, in addition to the underlying physical units.
- The analysis was based on the volumes of alcoholic beverages distributed by the Nordic alcohol monopolies in 2014 and covers product categories of wine, beer and distilled beverages.
- Details about methods and data sources can be found in the full report.

Environmental impacts

- The total monetized life cycle impacts amount to 320 million Euros, which is approximately 7 % of the overall before-tax sales value of the alcoholic beverages sold by the Nordic Alcohol Monopolies in 2014

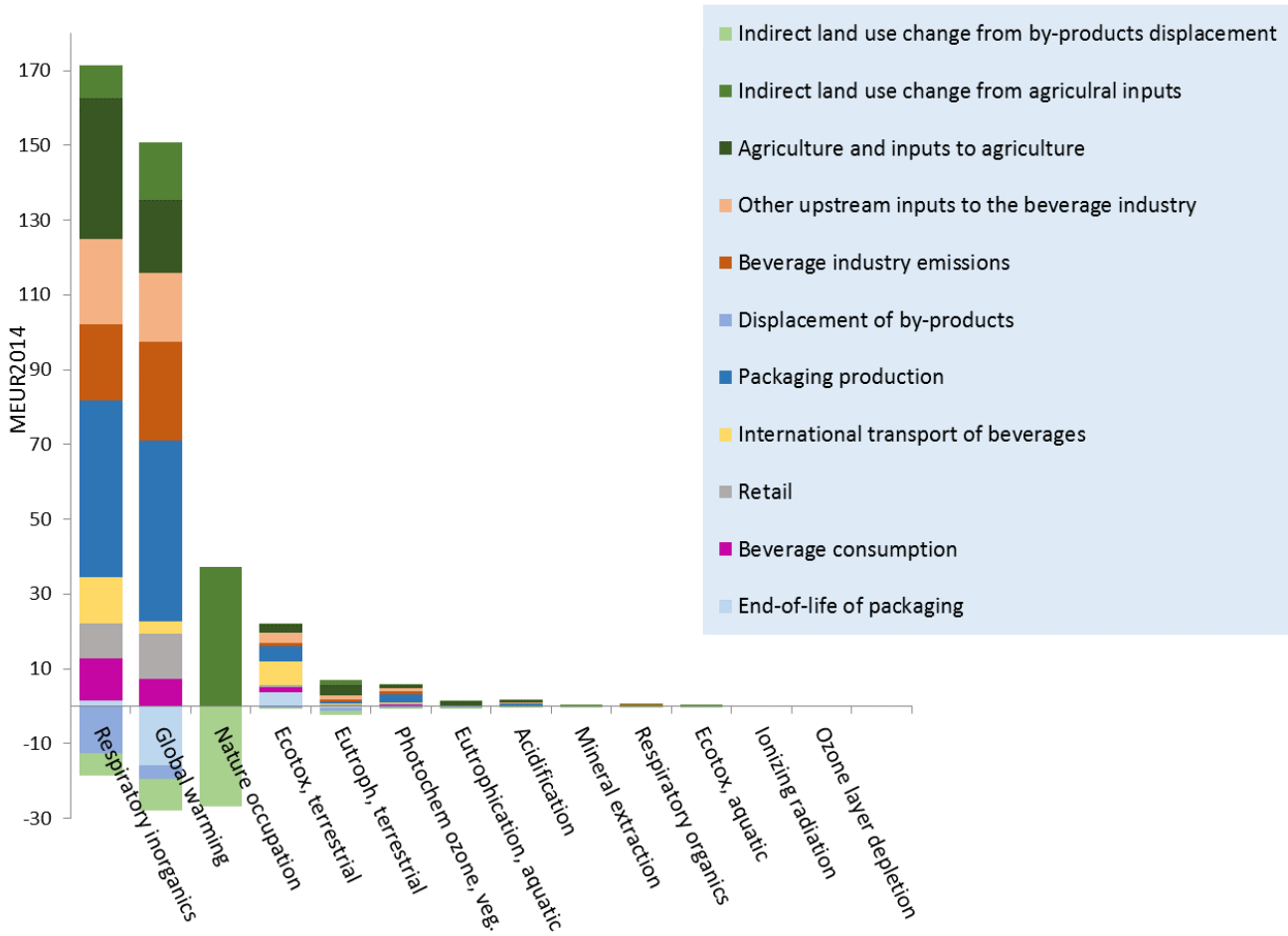
- The study of the environmental impacts has been carried out using nine environmental impact categories:
  - Acidification
  - Ecotoxicity (aquatic and terrestrial)
  - Eutrophication
  - Global warming
  - Human toxicity (carcinogenic and non-carcinogenic)
  - Nature occupation (biodiversity)
  - Photochemical ozone formation
  - Resource use (energy, water and minerals)
  - Respiratory effects

- Three *of nine different* environmental impact categories contribute to more than 90% of the total impact:
  - **Respiratory impacts** (from breathing polluted air; this covers nanoparticles, ammonia, NOx, SO_2)
  - **Global warming** (from greenhouse gases)
  - **Nature occupation** (loss of biodiversity)

- The two first impacts are mainly caused by the burning of fuels for energy production

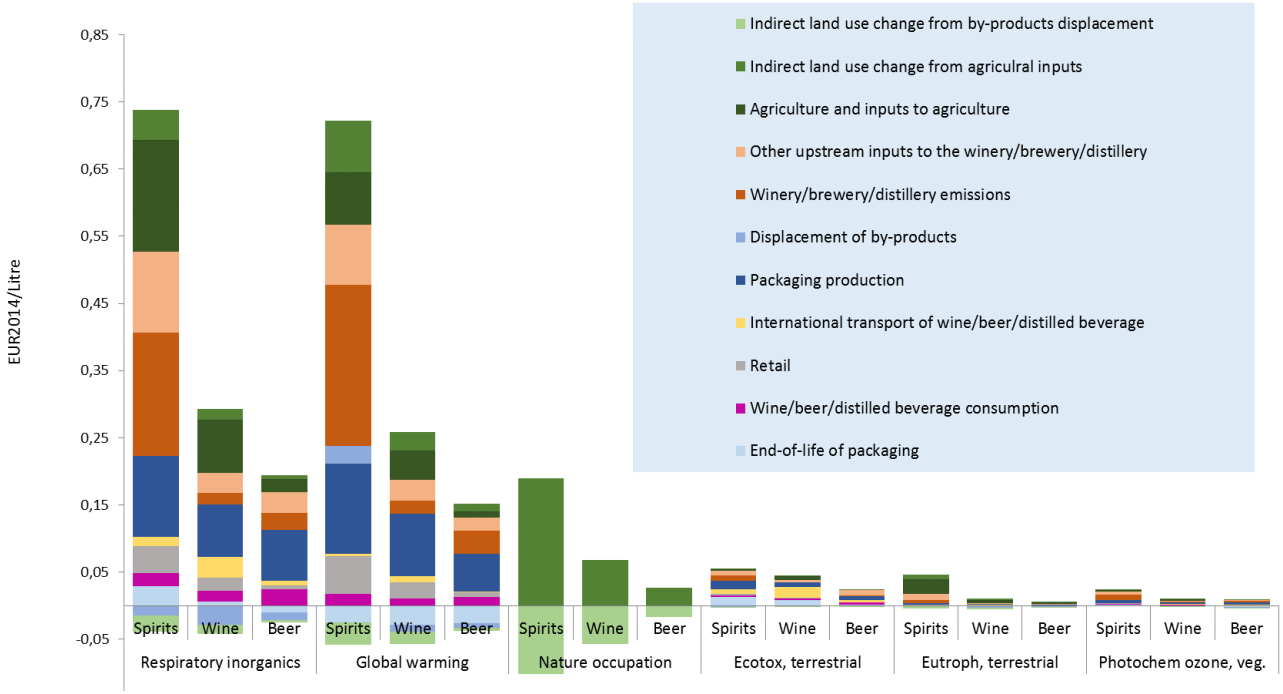
- The largest contributing life cycle stages, contributing more than half of the total impacts, are:
  - Packaging manufacturing – especially glass. This is partly alleviated by efficient recycling in the Nordic countries
  - Agriculture fuel use
  - Production – especially breweries and distilleries

Monetized total impacts



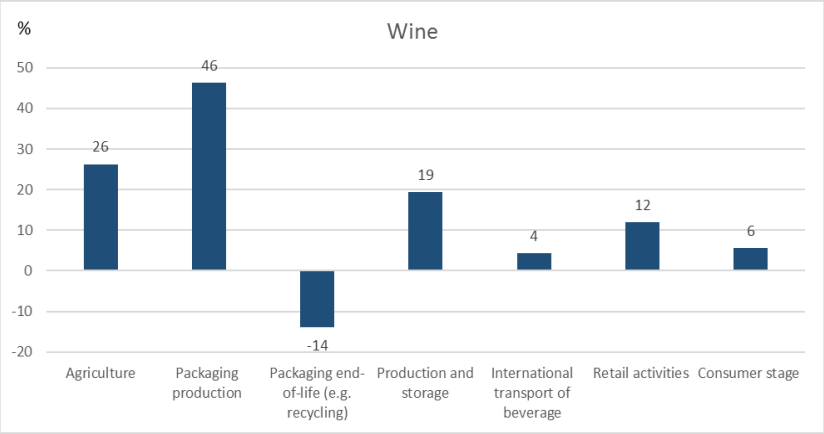
- Respiratory impacts, global warming potential and nature occupation (loss of biodiversity) are clearly the biggest total impacts

Impacts by product category



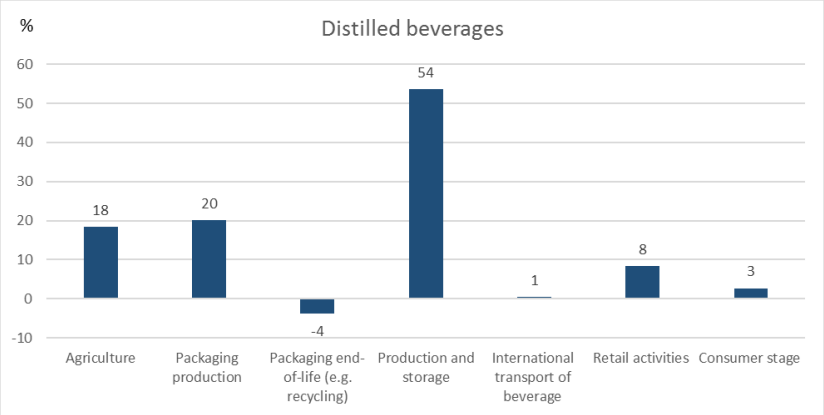
- Within product categories there are clear differences of magnitude between the major impacts

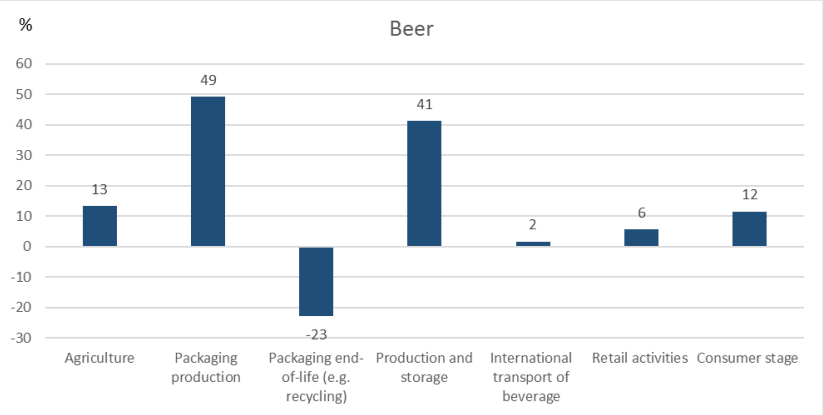
Global warming impact of product categories (% share of each stage of total life cycle impact)



Major impacts

- For wine: packaging and agriculture
- For distilled beverages: production
- For beer: packaging and production





Main improvement areas

- Packaging
  - Weight of glass
  - Choice of material used (PET, aluminum, beverage carton, glass, bag-in-box) and weight of individual packages
- Focus on managing agricultural fuel use and greenhouse gas emissions
- Energy use
  - Large variation between producers suggest good opportunities for improvements
- Consider if agricultural yields can be increased without affecting quality

Other learnings from the study

- The potential differences between producers are likely to be more important than differences between countries
- Studying environmental impacts in our whole value chain is very complex. The results of this study rely on available data and its quality.
- Communication and cooperation in the supply chain and towards our customers will be essential to succeed in reducing the environmental impacts.