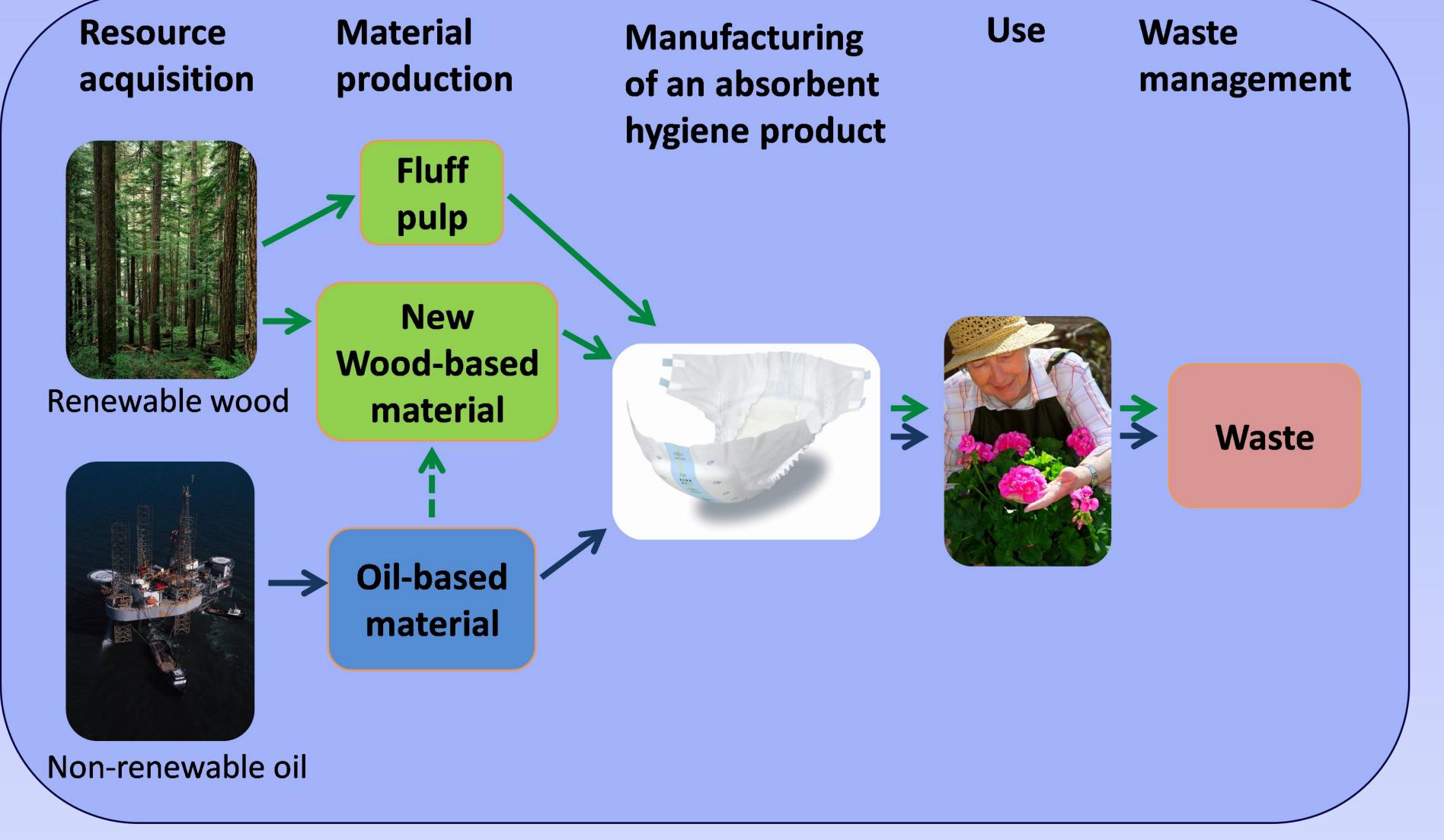
# CHALMERS

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**Comparing the sustainability of using a** non-renewable oil based material in an absorbent hygiene product with that of using a renewable wood based material



The sustainability of a product is dependent on management during its en-

the phases of its life cycle, not only resource acquisition but also material production, manufacturing of product, use and waste management.

### Aim

The overall aim of the WooDi project is to make a new absorbent hygiene product that is more sustainable than today's product, by replacing non-renewable oilbased material with renewable woodbased material.

This calls for a way to compare the sustainability of using different materials.

Some results from the literature study Comparisons of fossil fuels and biofuels focus almost exclusively on greenhouse gases

 Backcasting procedures can be used to define relevant sustainability aspects •Forest management systems cover maintenance of biodiversity and bioproductivity, but do not involve quantitative figures directly comparable with crude oil production

tire life cycle ( above) . The new woodbased absorbing material with different raw material origin will e.g. impact all

#### **Environmental (quantitative)**

- Depletion of non-renewable oil
- Impact on bioproductivity
- Impact on biodiversity
- Emission to air of greenhouse gases
- and more
- **Environmental (qualitative)**
- Quality of environmental management system
- Risk of severe environmental accidents
- and more

#### Social

- Safety and health impacts
- Impact on culture and recreation
- Impact on surrounding communities
- Good international practice regarding safety and health
- and more



#### **Economics**

- Adherence to existing or future regulations
- Availability of raw materials
- Threats regarding public
- perception of the product
- Assets needed
- Technical and quality factors
- Operating costs • and more

 There are diverse weighting/valuation methods for Life Cycle Impact Assessment (LCIA), but they do not include land use in situations with strong land availability constraints

## Conclusion

There is no readily available method for comparing the sustainability of nonrenewable oil and renewable wood as raw material in products. There is a need for a systematic approach in selecting criteria appropriate for a specific product as well as integrating and evaluating results regarding the set of criteria used.

Many different sustainability criteria

ance, but can provide input to a sus-

have been used in different product evaluations, see some examples above. None of these can by themselves describe sustainability perform-

tainability assessment. The need for a systematic approach in defining and assessing sustainability is obvious.



The WooDi project - the Wood based Diaper, is a research collaboration between industry and university.





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