

# PAPER BIO PACK

WHAT'S THE FUTURE  
OF PACKAGING IN  
CENTRAL EUROPE?

[WWW.PAPERBIOPACK.EU](http://WWW.PAPERBIOPACK.EU)



INNOVHUB  
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innovation and research

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European Union  
European Regional  
Development Fund



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PILOT ACTION ITALY: LIC PACKAGING CASE STUDY

# PILOT ACTION IN ITALY



- Company 1: Support on certification schemes for recyclability and compostability of paper based sacks
- Company 2: Support on the recyclability evaluation of three innovative compostable packaging
- Company 3 LIC PACKAGING: SIMPLIFIED LCA of a new paper based tray for fresh meat application



# PILOT ACTION LIC PACKAGING



**LIC Packaging Spa** is an Italian Company that designs, industrializes and manufactures Packaging Solutions for direct food packaging and transport and Displays for the sale and exposure.

**FOUNDATION: 1952**

## KEY PRODUCTS/ SERVICES:

- Corrugated boxboard
- Display containers
- Food packaging trays

## KEY MATERIALS:

- Recycled and virgin paper
- Bioplastics



Creating innovation, manufacturing solutions.



# PILOT ACTION LIC PACKAGING



**Eco &Food** is the business unit **dedicated to direct food contact packaging.**

All Eco&Food packaging solutions are made of **HT Board**, a revolutionary material as nature intended; designed to contain food in direct contact with **pure cellulose papers from certified forests** that guarantee **hygiene and food safety** and at the same time offer a multifunctional **packaging really eco-friendly.**

With the Eco&Food Line aim to replace conventional plastic products on the market.



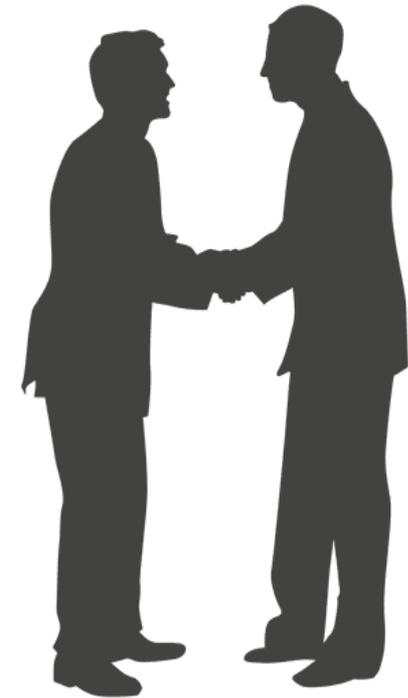
The good of packaging

## HT Board®



# PHASE 1: INITIAL CONTACT

- Phone meeting with the selected company
- Presentation of the initiative
- Sending of the questionnaire
- Preliminary field visit conducted by Innovhub



Initial contact



# FEEDBACK FROM AUDIT TOOL

- Knowledge of biomaterials
- Environmental certifications
- Sustainability
- Vision/market strategy
- Communication strategy



Evaluation of framework company conditions by Innovhub



- **Second field visit:** Innovhub/COBRO
  - Discussion with experts of the company
- **Major need:** environmental communication
  - strategy of the company
  - growing market demands for eco-friendly solution,
- **recommended action:** perform a simplified LCA to evaluate environmental performance of one of their paper based product currently under development



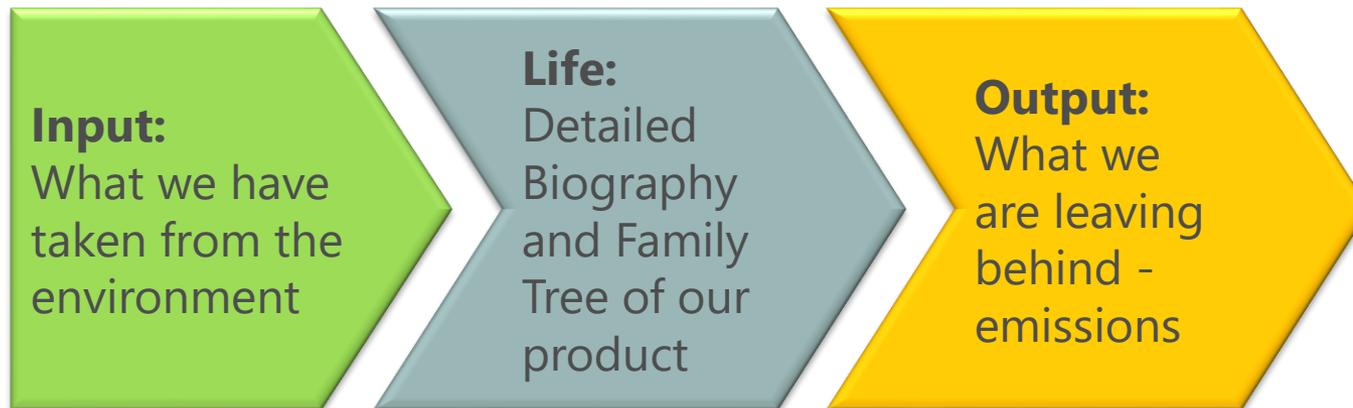
## Agreement about case study implementation

### COMPARISON OF INNOVATIVE PAPER PACKAGING WITH PLASTIC PACKAGING ON THE MARKET



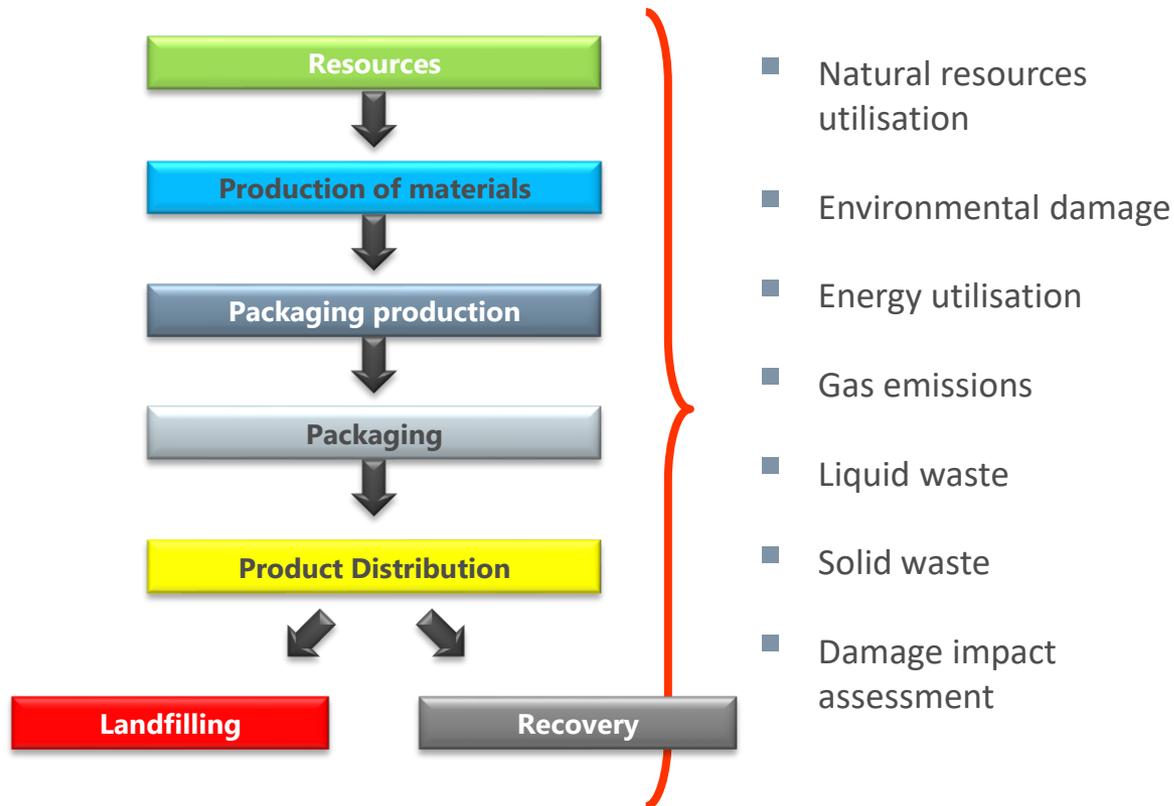
- ✓ **Transnational cooperation between Innovhub and COBRO**
  - ✓ Desk work
  - ✓ Three days of common work in Warsaw on data collected
  - ✓ Draft report
- ✓ **Feedback to company**
  - ✓ Consolidation of results
- ✓ **Final feedback to company via web meeting**





- Packaging LCA is used to assess the environmental impact of packaging and includes such factors as infrastructure (transport), multi-usability of packaging and how the packaging is/can be disposed.
- LCA is best used as a comparative assessment tool – i.e. in terms of packaging it is best to compare different packaging types for the same group of products.





# SIMPLIFIED LCA STUDY



• **PAPER/PLA**



**PS**

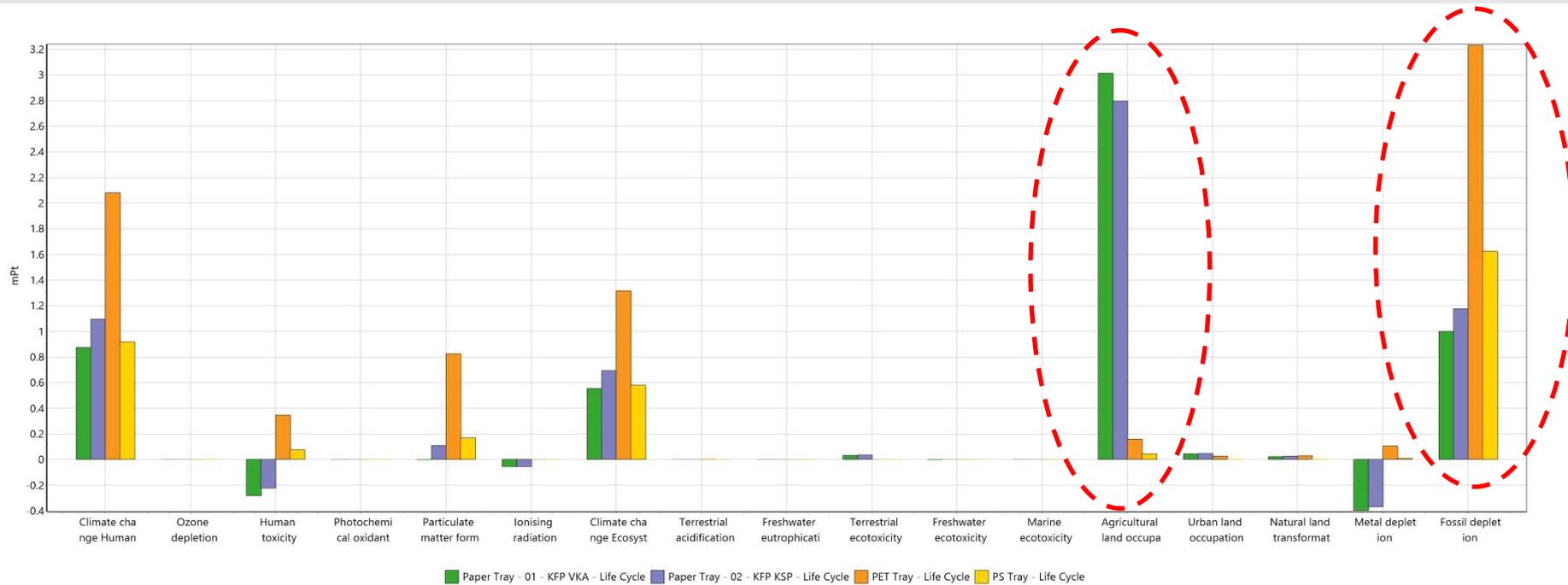


**PET**

- **FUNCTIONAL UNIT:** pack suitable for 300g of fresh meat
- **SYSTEM BOUNDARY:** CRADLE TO GRAVE
- **WEIGHT OF PRODUCTS**
  - PAPER/PLA>PET>POLYSTIROL
- **END OF LIFE RECYCLING**
  - PAPER/PLA: YES (< 5% PLA) RECYCLABILITY ATICELCA TESTED
  - PET: YES
  - POLYSTYROL: NO
- **PAPER/PLA**
  - 100% VIRGIN FIBRES
  - FSC CERTIFICATION



# TRAY COMPARISON MID-POINT

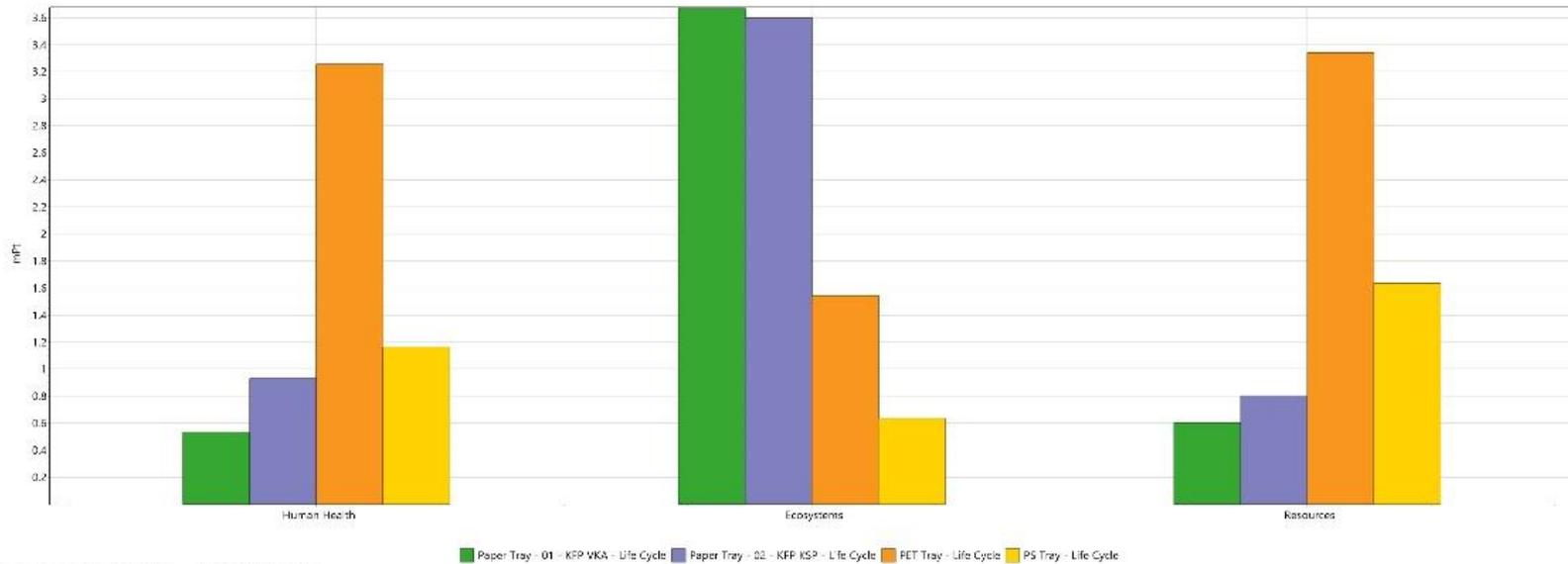


Method: ReCiPe Endpoint (H) V1.13 / Europe ReCiPe H/A / Weighting  
 Comparing 1 p 'Paper Tray - 01 - KFP VKA - Life Cycle', 1 p 'Paper Tray - 02 - KFP KSP - Life Cycle', 1 p 'PET Tray - Life Cycle' and 1 p 'PS Tray - Life Cycle';

Major impact of paper based trays is IN AGRICULTURAL LAND OCCUPATION  
 Whereas  
 Major impact of Plastic trays are in FOSSIL DEPLETION



# TRAY COMPARISON END-POINT

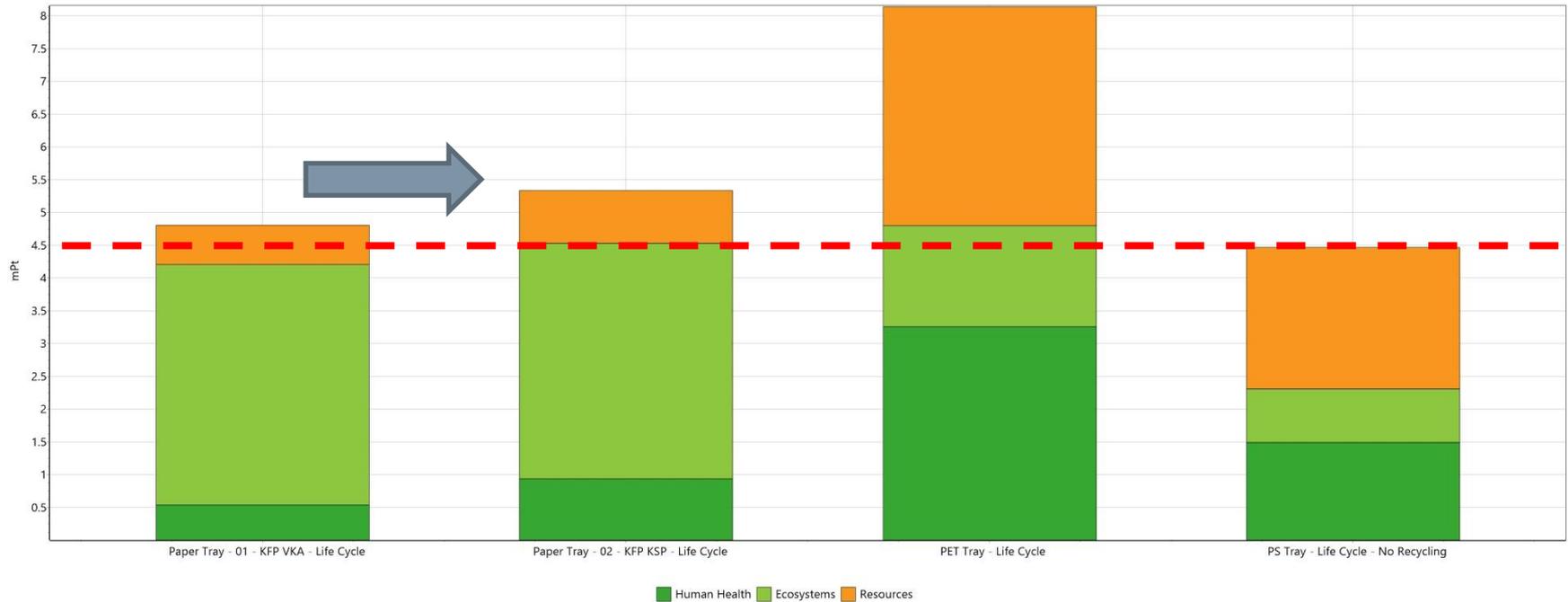


Method: ReCiPe Endpoint (H) V1.13 / Europe ReCiPe H/A / Weighting  
Comparing 1 p 'Paper Tray - 01 - KFP VKA - Life Cycle', 1 p 'Paper Tray - 02 - KFP KSP - Life Cycle', 1 p 'PET Tray - Life Cycle' and 1 p 'PS Tray - Life Cycle'.

•damage to human health-----damage to ecosystems-----damage to resource availability



# TRAY COMPARISON SINGLE SCORE



Method: ReCiPe Endpoint (H) V1.13 / Europe ReCiPe H/A / Single score

Comparing 1 p 'Paper Tray - 01 - KFP VKA - Life Cycle', 1 p 'Paper Tray - 02 - KFP KSP - Life Cycle', 1 p 'PET Tray - Life Cycle' and 1 p 'PS Tray - Life Cycle - No Recycling';

- PET tray shows the highest impact
- PAPER tray and PAPER/PLA tray are very similar to PS tray
- The addition of PLA to paper shows a limited increase of the total impact



# FEEDBACK FROM PILOT ACTION



- PS risks of being ban as consequence of SUP
- The slight environmental advantage does not guarantee circular economy
- PET tray has the highest environmental impact
- **Addition of PLA to paper tray increases functionality**
  - It produces only a slight increase on environmental impact
  - It is recyclable in the paper stream (PLA <5% in peso) thus maintaining the circularity of the fibre loop
  - It is a new product that may be further improved



- Recommendations TO COMPANY for improvement
  - Perform a full LCA study
    - *Primary data on land occupation might reduce the impact*
  - Work on total weight reduction
    - *Fibre stock and/or reinforcement additives*
  - Replace part of the virgin fibres with recycled fibres or annual based fibres
    - *Legislation constrains on food contact with grease/wet foodstuff*
    - *PLA may be a barrier for some contaminants*

**Paper/PLA trays may have a good potential to replace conventional plastic products on the market**



# PAPERBIOPACK NETWORKS



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