



PACKALL

PackAlliance:
European alliance for innovation training
& collaboration towards future packaging

Linking **Academy** to **Industry**.

Training program module no.2: New materials and biomaterials

Topic: Economic and financial efficiency analysis of new biomaterials in plastic packaging industry

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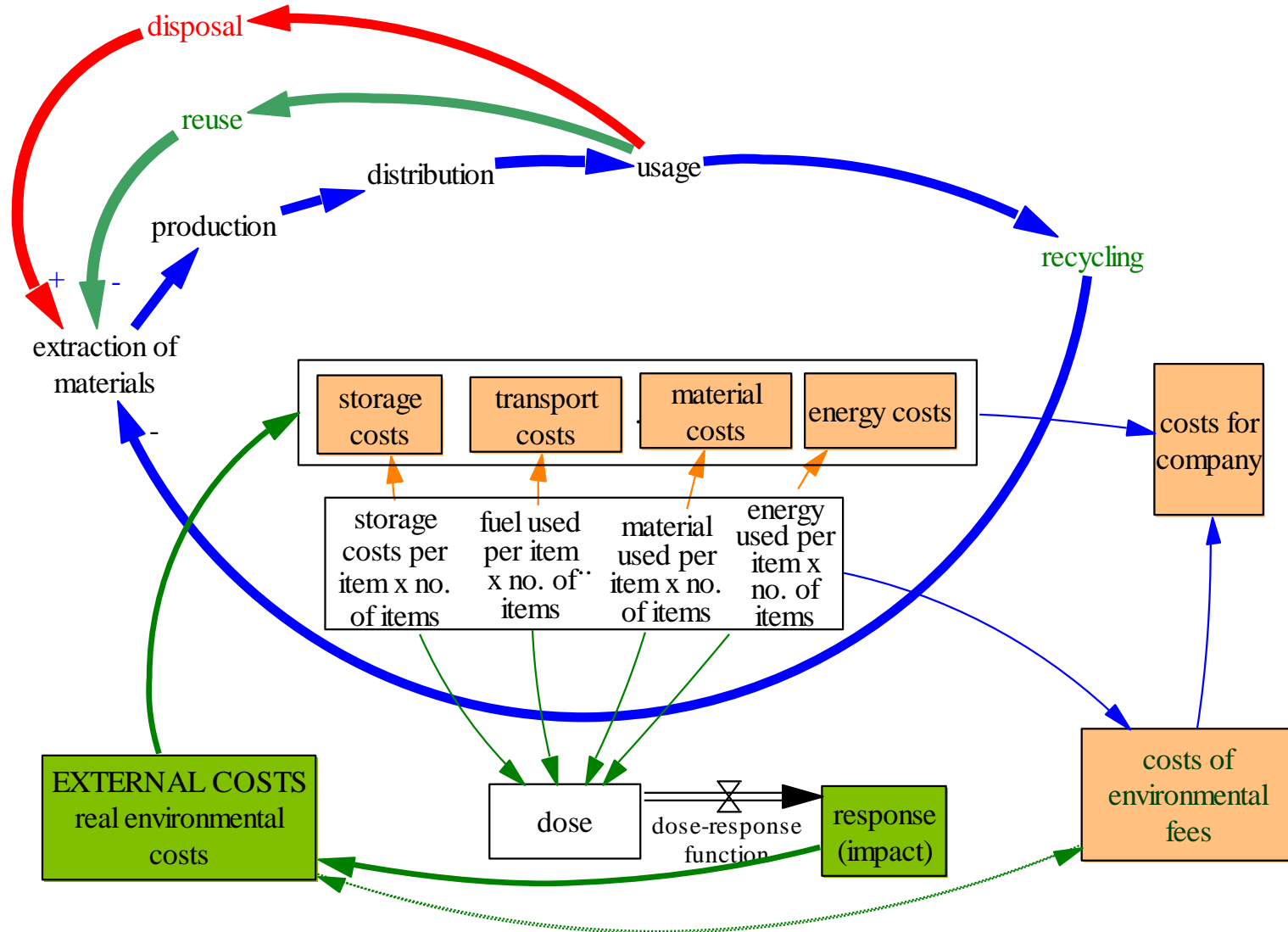
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Feasibility study

- Diagnosis of the situation / problem identification / solution identification
- Socio-economic conditions / market analysis
- Study of legal environment / strategic documents (preliminary risks identification)
- Competition analysis / complementary investments / stakeholders' analysis
- Scenarios analysis of the investment
- Definition of the technical and material scope of the investment / resource identification (what do we need and when)
- Institutional analysis
- Cost-Benefit Analysis:
 - demand analysis -> prognosis of future demand (number of items sold)
 - financial analysis -> Balance Sheet (fixed assets, variable assets, capital, liabilities), Profit Loss Account (revenues, expenditures), Cash Flow
 - socio-economic analysis -> effects on the 3rd parties
 - sensitivity analysis -> how the outcomes change if the assumptions change, e.g. +/- 10%
 - risk analysis -> probability of hazard occurrence and magnitude of impact on the outcome



Indicators of financial efficiency and economic efficiency, incl. environmental effects

NPV (Net Present Value)

$$NPV = \sum_{t=0}^n \frac{CF_t}{(1+r)^t} - \sum_{t=0}^n \frac{I_t}{(1+r)^t}$$

CF_t - cash flow in year t (net benefits),
 r - discount rate, e.g. 5%,
 I - expenditures (investment costs),
 t - years of investment exploitation

ENPV (Economic Net Present Value)

water related impacts (quality and quantity)
soil pollution and degradation
air contamination (emissions, e.g. NOx, SOx, PM10, PM2.5)
climate related impacts (measured as CO2 emissions)
noise emission
energy consumption
natural resources depletion
landscape impacts
natural ecosystems and biodiversity degradation

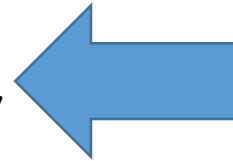


Table 5: Project benefits and negative externalities

Project Benefits			
Type	Base for calculation	Monetary value	Comments
Access to drinking water	Nr. Of households in project service area	195 Euro/household/year (2014 value)	Values for following years of projection to be increased at the same rate as forecast growth in household income (see Annex 2)
Improvement of water bodies (use value)	Nr. Of people living in the project service area	26.5 Euro/person/year (2014 value)	Values for following years of projection to be increased at the same rate as forecast growth in household income (see Annex 2)
Improvement of water bodies (non use value)	Nr. Of households in project service area	0.004 – 0.011 Euro/household/year/KM river	See Annex 2 for further details
Cost savings to customers – private well	Nr. Of households newly connected	406 Euro/household/year	
Cost savings to customers – sewage disposal	Nr. Of households newly connected	448 Euro/household/year	
Cost savings to operator – water abstraction	Incremental water savings (in m ³)	Water abstraction fee (Apele Romane)	To be detailed in technical studies
Cost savings to operator – energy consumption	CO ₂ emission savings (in tonnes)	From 25 Euro/tonne in 2010 to 45 Euro/tonne in 2030	To be detailed in technical studies. See annex 2 for details on prices.
Negative Externalities			
Type	Base for calculation	Monetary value	Comments
Increase in CO ₂ emission – sludge digestion	CO ₂ emission (in tonnes)	From 25 Euro/tonne in 2010 to 45 Euro/tonne in 2030	To be detailed in technical studies. See annex 2 for details on prices.
Increase in CO ₂ emission – sludge transportation	CO ₂ emission (in tonnes)	From 25 Euro/tonne in 2010 to 45 Euro/tonne in 2030	To be detailed in technical studies. See annex 2 for details on prices.



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