Bavarian Institute for Waste Research

Integrated Product Policy and Life Cycle Analysis as Tools for Optimisation of Process and Product Development

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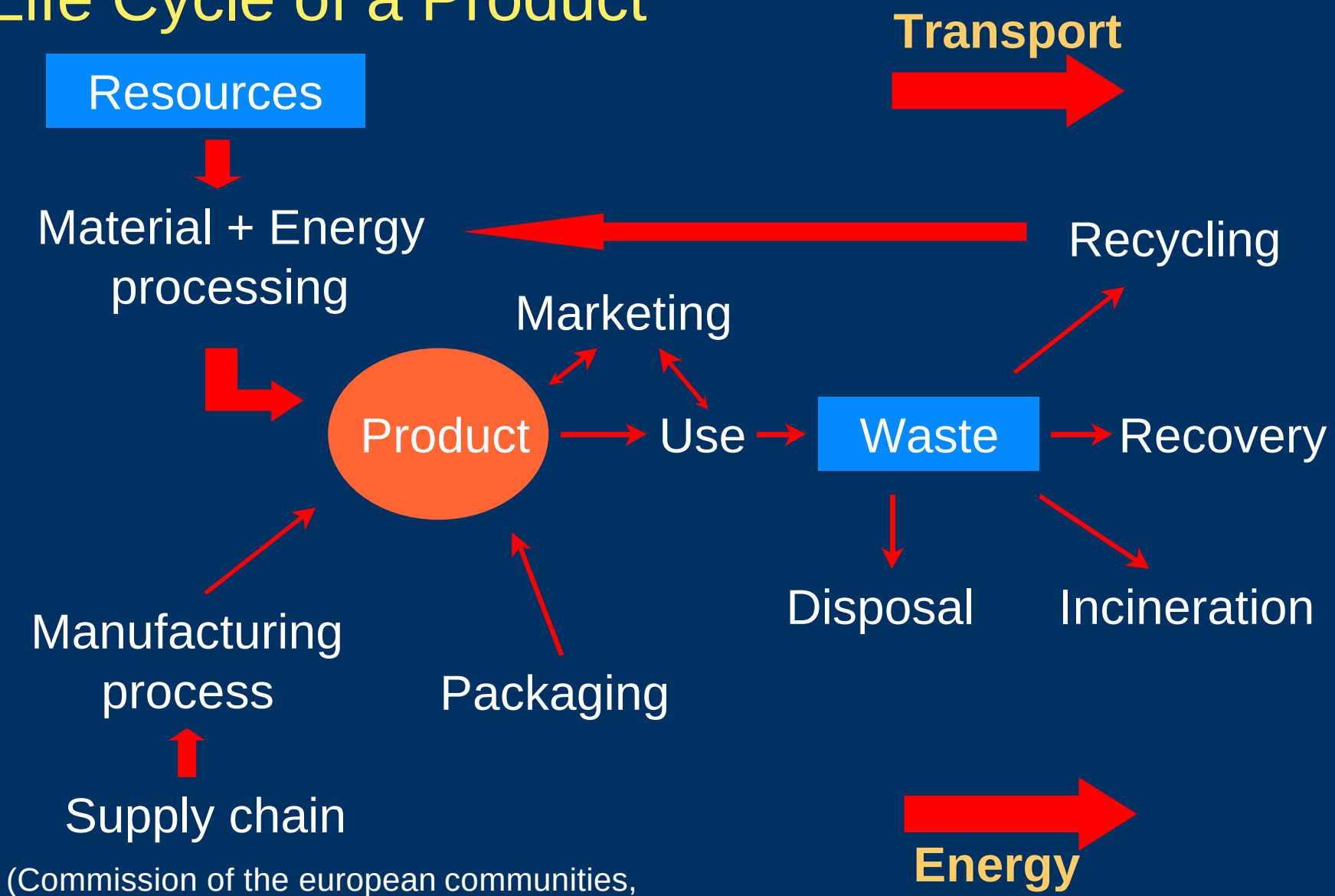
Life Cycle of a Product



(Commission of the european communities, Green Paper on Integrated Product Policy)

Integrated Product Policy

Key Issue

Shifting of environmental problems between different environmental media should be avoided.

Definition

Integrated Product Policy is an approach which seeks to reduce the life cycle environmental impacts of products from the mining of raw materials to production, distribution, use and waste management.

IPP focuses on those decision points which strongly influence the life cycle environmental impacts of products and which offer potential for improvement:

- eco-design of products
- informed consumer choice
- product prices

(Commission of the European Communities, Green Paper on Integrated Product Policy)

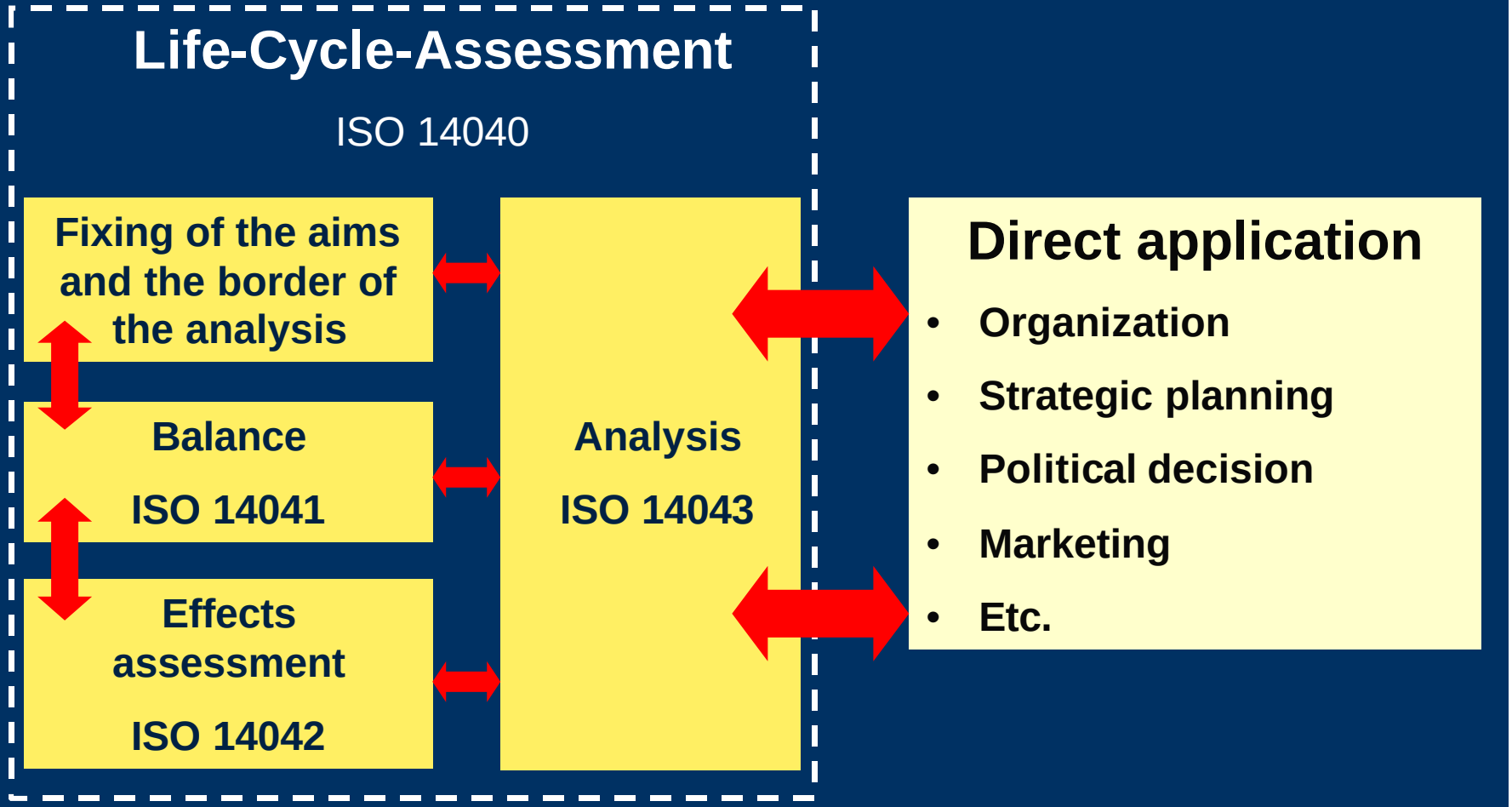
Instruments of IPP

For the development of IPP a lot of instruments exist:

- Environmental management
- Energy management
- Material flow management
- Eco-Design
- Life-Cycle-Assessment
- Process chain development
- ...

Life-Cycle-Assessment

The Methodology



LCA and IPP Application in Process Development

Development of a Filtering Line

Project team:

- Handtmann Armaturenfabrik GmbH & Co.
- Neumarkter Lammsbräu
- BIfA GmbH

Project leader:

- Markus Hertel (BIfA GmbH)

Example for IPP: Development of a new filtering line for liquids in food industry

The problem

The separation of floating materials and clouding material from beer is usually accomplished by siliceous earth filtration.

The disposal of the used siliceous earth will become problematic in future, because landfilling in Germany will not be admissible any longer.

→ What should happen with the used siliceous earth ?

Example for IPP: Development of a new filtering line for liquids in food industry

Necessity of alternatives

The development of economical alternatives is necessary because of

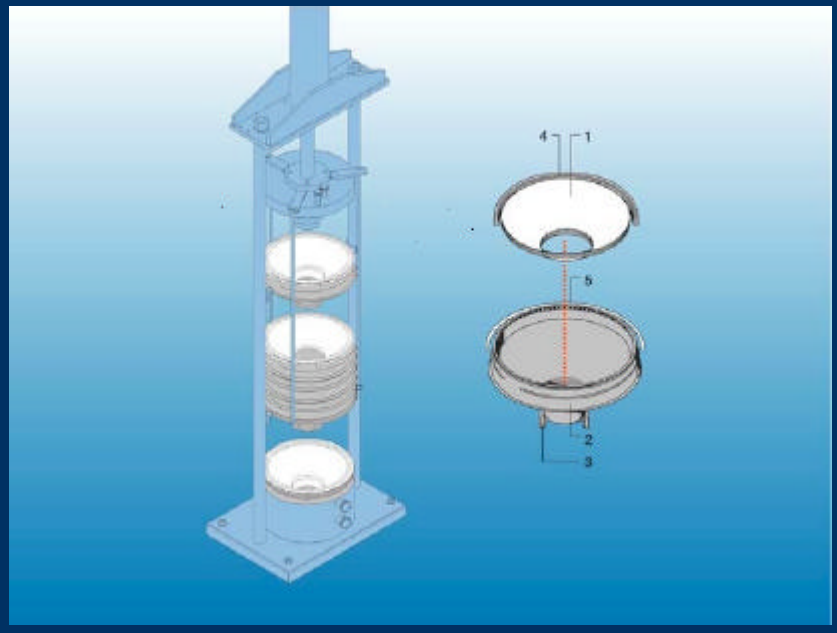
- Waste disposal
  - Incineration is too expensive
  - Disposal into agri- and horticulture is partly not accepted as a proper method
  - Utilization concepts can lead to diseases by mold fungus growth
- Raw material situation
  - The scarce resources of siliceous earth are nearly exhausted

Example for IPP: Development of a new filtering line for liquids in food industry

Alternative filtering process:

The MultiMicro-System (MMS) is a

- Modern filtration process
- Filter consists predominantly of cellulose connected to sacharose
- MMS can be used as a modern alternative for lamination-filters
- The filter is constructed „without a pressure tank“



Example for IPP: Development of a new filtering line for liquids in food industry

The results

The alternative filtration process

- Is a lower waste process
- Fullfills all technical demands
- Is already economical today under certain basic conditions
- Will become still more economical with rising disposal costs for siliceous earth

Example for IPP: Decision on the raw materials applied for the production of plastic chips

The initial position

The replacement of fossil resources by renewable resources has a special value in the society:

- CO_2 – Neutrality
- Conservation of fossil raw material
- Biological degradability

By reflection of the entire life cycle the advantages are put in perspective. → life-cycle-assessment

→ What is the better resource, fossilized or renewable resources material?

LCA and IPP Application in Process Development

Decision on raw material applied for the production of loose fill chips

Project team:

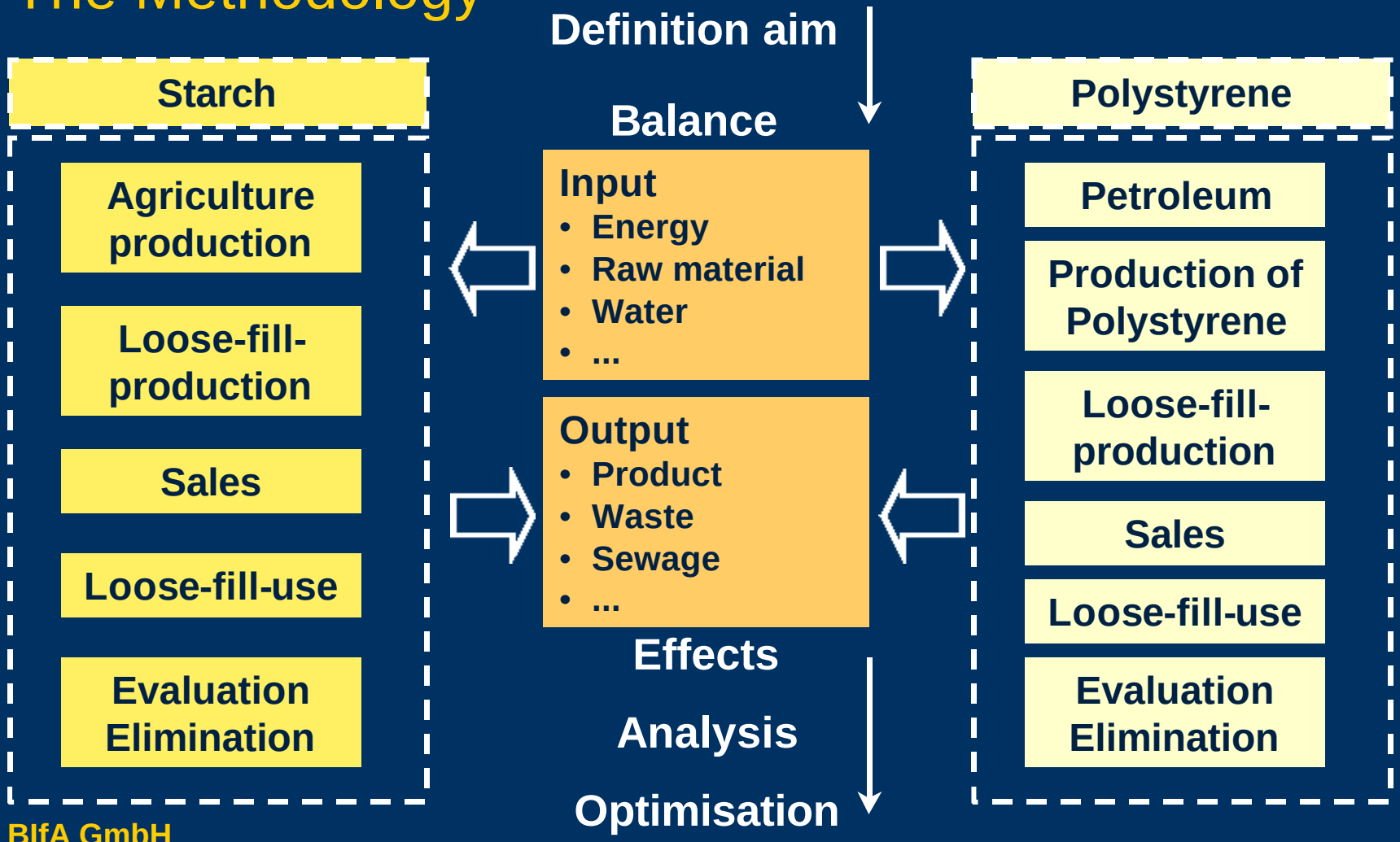
- Ifeu Heidelberg GmbH
- Flo-Pak GmbH
- BIfA GmbH

Project leader:

- Eduard Würdinger (BIfA GmbH)

Example for IPP: Decision on raw material applied for the production of loose fill chips

The Methodology

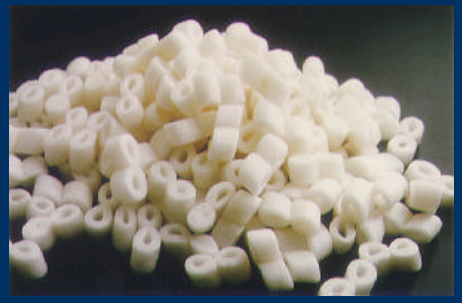


Example for IPP: Decision on raw material applied for the production of loose fill chips

The advantages of life-cycle-assessment

Life-cycle-assessment makes it possible to

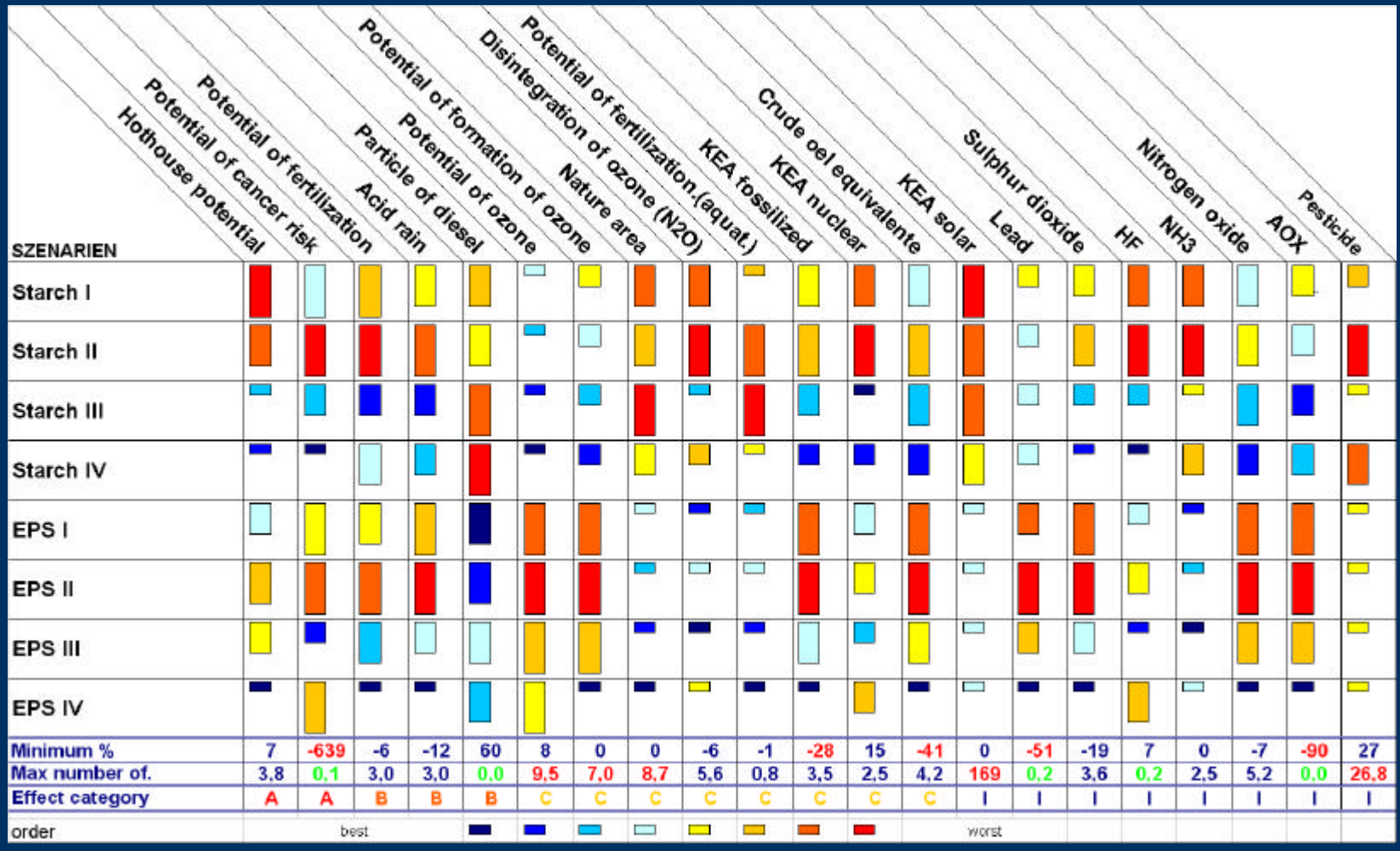
- Show weak points
- Show possibilities for optimisation
- Create basis for answering bsimilar questions and problems



Example for IPP: Decision on raw material

applied for the production of loose fill chips

The results



SZENARIEN	Hothouse potential	Potential of cancer risk	Potential of fertilization	Particle of diesel	Acid rain	Potential of formation of ozone	Potential of ozone	Disintegration of ozone	Nature area	Potential of fertilization (N2O)	KEA fossilized	KEA nuclear	Crude oel equivalente	KEA solar	Sulphur dioxide	Lead	HF	NH3	Nitrogen oxide	AOX	Pesticide
Starch I																					
Starch II																					
Starch III																					
Starch IV																					
EPS I																					
EPS II																					
EPS III																					
EPS IV																					
Minimum %	7	-639	-6	-12	60	8	0	0	-6	-1	-28	15	-41	0	-51	-19	7	0	-7	-90	27
Max number of.	3,8	0,1	3,0	3,0	0,0	9,5	7,0	8,7	5,6	0,8	3,5	2,5	4,2	169	0,2	3,6	0,2	2,5	5,2	0,0	26,8
Effect category	A	A	B	B	B	C	C	C	C	C	C	C	C	I	I	I	I	I	I	I	I
order	best													worst							

Summary

IPP is a comprehensive approach for all environmental issues during the development of new product or process

IPP requires a life cycle approach

IPP needs

1. Using of explicit and implicit instruments
2. Combination of economic and ecologic Life-Cycle assessment
3. Combination of different scientific viewpoints
4. Provision and transmission of environmental information
5. Creation of market for IPP products

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The Bavarian Institute for Waste Research thanks for your interest

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