



# Sustainability Hot Spot Analysis of Insect Supply Chains for Food and Feed

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## Background

- Tool established by the Wuppertal Institute for Climate, Environment and Energy GmbH (Germany)
- Identification of social and ecological aspects of agricultural products along their value chain based on qualitative approach
- First-time adoption of Sustainability Hot Spot Analysis (SHSA) and its supplement on harvesting and rearing to the processing of insects in South Eastern countries

## Materials and Methods

- SHSA is based on review of scientific literature as well as on interviews with stakeholders and other personal communication with experts
- Considered environmental and social aspects (Tab. 1) as well as each life cycle phase were ranked from 0 (no importance) to 3 (high importance) according to their relevance based on scientific literature and afterwards multiplied with each other
- The product varies from 0 to 9, with products of 6 and 9 indicating hot spots

Tab. 1: Environmental and social aspects, which were considered in the Sustainability Hot Spot Analysis (SHSA).

Environmental Aspects	Social Aspects
Raw materials	General working conditions
Energy resources	Social security
Water resources	Training and education
Land use	Workers health and safety
Waste	Human rights
Emissions to air (incl. GHG)	Living wages
Emissions to water	Consumer health and safety
	Product quality

## Objectives

- Analyzing systematically findings from existing studies on insect supply chains for food and feed and its sustainability issues
- Carrying out initial SHSA on insect supply chains for food and feed

## Results

- Hot spots are mostly concentrated in the **phases of Rearing, Processing and Use** (Tab. 2)
- Especially the environmental aspect **Energy resources** was identified as hot spot
- (Potential) reasons:
  - Rearing**
    - Fodder production
    - Disease and pest management
  - Processing**
    - Grinding, dehydrating, mechanical drying as well as freeze-drying
- The social aspects **Training, Consumer health and safety** as well as **Product quality** were weighted as hot spots
- These hot spots are also concentrated in the **phases of Rearing, Processing and Use**

Tab. 2: Identified potential hot spots of (a) the environmental aspects and (b) the social aspects.

(a) Environmental Aspects	Wild harvesting (1)	Rearing (2)	Processing (3)	Use, incl. retail (2)	Waste treatment (1)
Raw materials	1	*	*	*	1
<b>Energy resources</b>	1	<b>6</b>	<b>9</b>	*	1
Water resources	1	0	*	*	1
Land use	0	0	*	*	0
Waste	*	*	0	*	*
Emissions to air (incl. GHG)	0	*	0	*	0
Emissions to water	0	2	3	2	0

  

(b) Social Aspects	Wild harvesting (1)	Rearing (2)	Processing (3)	Use, incl. retail (2)	Waste treatment (1)
General working conditions	*	*	*	0	*
Social security	*	*	*	0	*
<b>Training and education</b>	1	<b>6</b>	*	*	*
Workers health and safety	*	*	*	*	*
Human rights	*	*	*	*	*
Living wages	1	*	*	*	*
<b>Consumer health and safety</b>	2	2	<b>9</b>	<b>6</b>	*
<b>Product quality</b>	*	*	<b>9</b>	<b>6</b>	*

\* Information gap

## Conclusion

- Specific problems of the life cycle accumulated in the phases of
  - Rearing and processing (ecological aspects)
  - Processing and use (social aspects)
- Insect species specific SHSA is needed
- Harmonizing of SHSA results from secondary data with expert interviews (primary data)

## Outlook

- Extension of SHSA on
  - Economic aspects
  - Ethical aspects
- Put the focus on selected edible insect species

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