

Environmental impacts of food consumption and its reduction potentials

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Key questions

- What are the total environmental impacts of consumption and how can they be allocated to consumption areas?
- What are the most important aspects within the food consumption area?
- Which potentials exist for the reduction of environmental impacts due to food consumption?

Background

- Different projects financed by
 - WWF Switzerland
 - Energieforschung Zurich - ewz-electricity supply Zurich
 - Swiss Federal Office for the Environment, FOEN
- Here we present our personal point of view
- www.esu-services.ch/projects/lifestyle/

Life cycle impact assessment

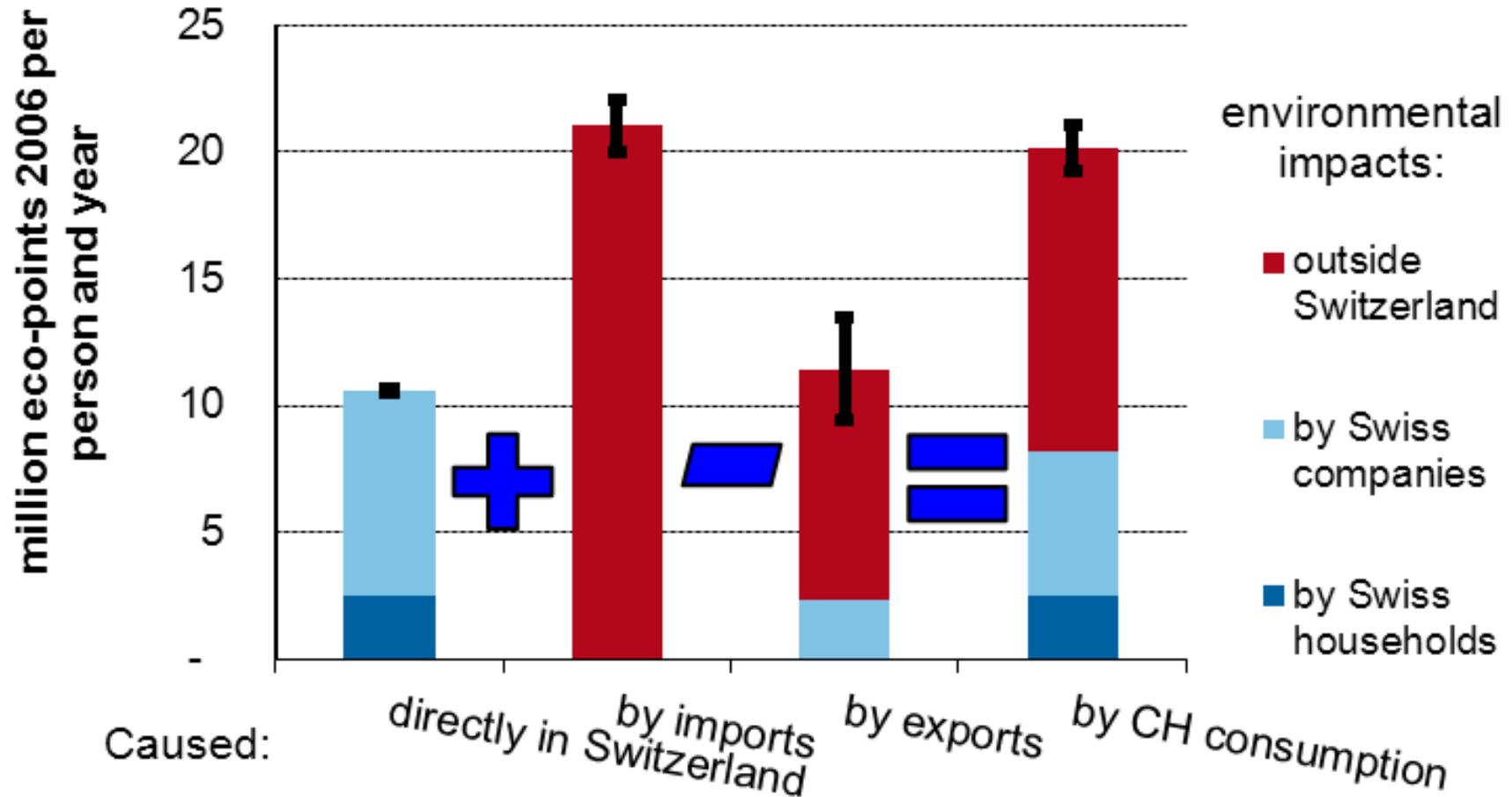
- It is necessary to use a single score method to make this type of assessment and provide clear recommendations
(feasibility of environmental product information
www.esu-services.ch/projects/epi/)
- Use of the LCIA method ecological scarcity 2006 (Switzerland)
- Further evaluation of greenhouse gas emissions and energy use for comparison with older studies

1.

TOTAL IMPACTS IN SWITZERLAND

MEAN FIGURES OF SWISS EE-IOA AND SIMPLIFIED “LCA&TRADE STATISTICS” APPROACH

Total balance of Swiss impacts



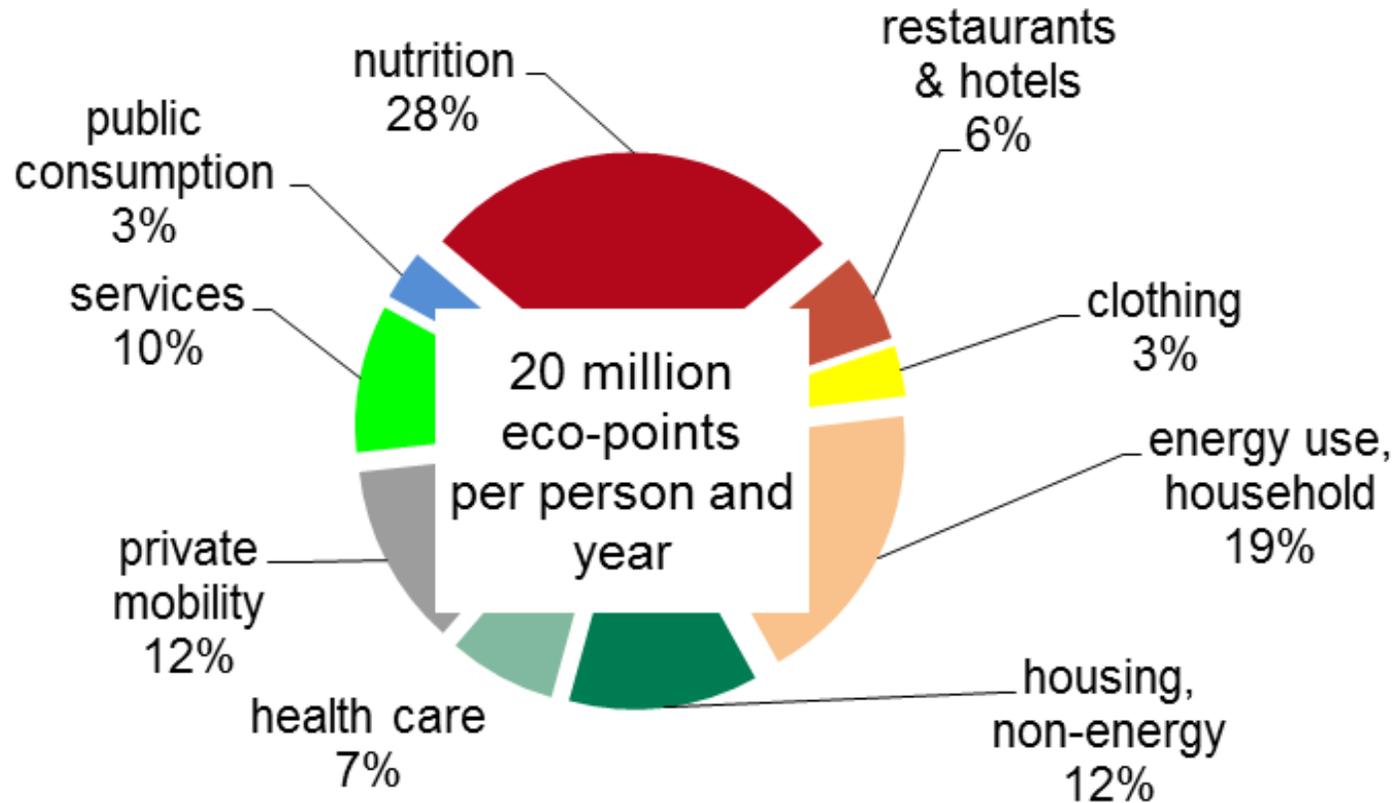
➤ 20 Million eco-points per year and capita

2. **SHARE OF CONSUMPTION AREAS CALCULATION WITH SWISS EE-IOA**

Share of consumption areas in 2005



Share of consumption areas



- Nutrition is the most important consumption area with 28%
- Share of restaurants not included in this figure

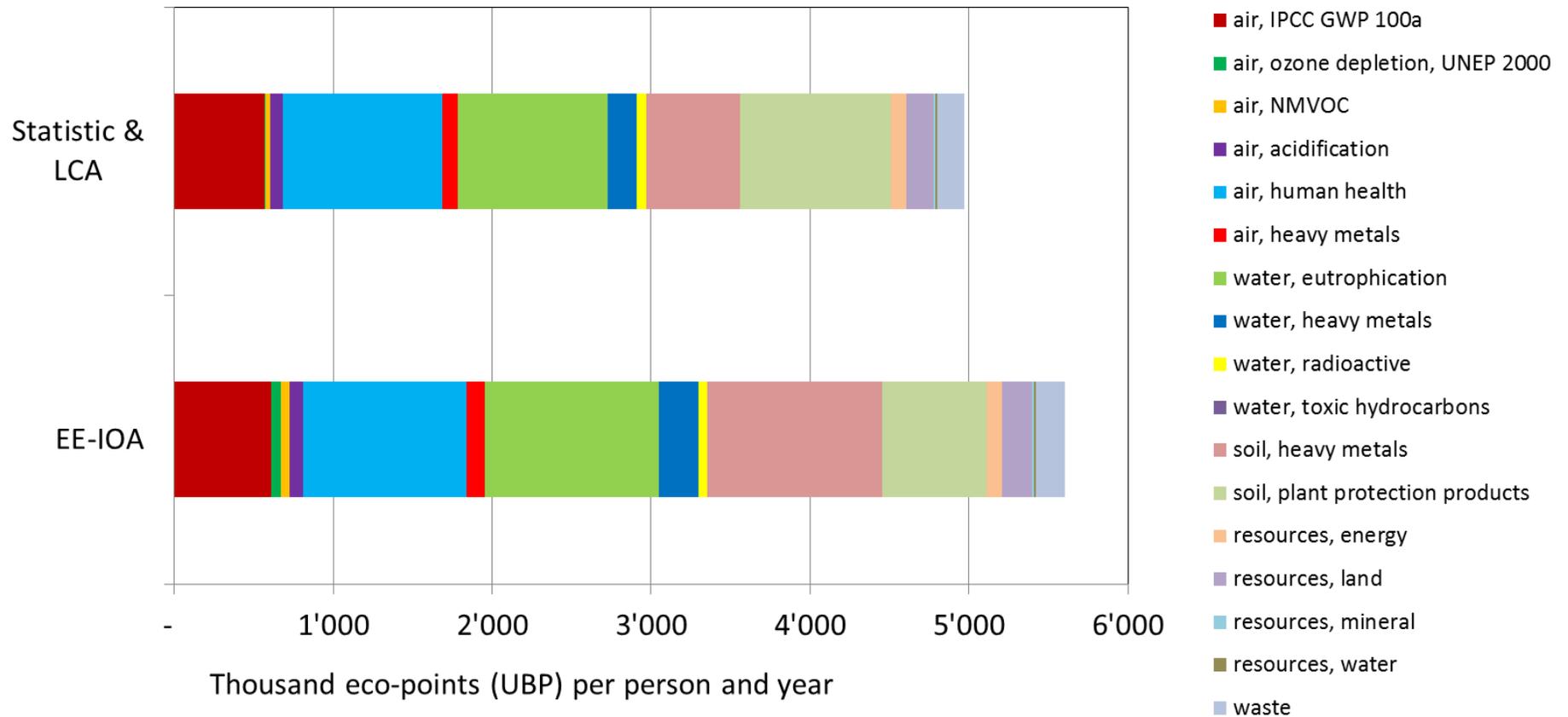
3.

FURTHER ANALYSIS OF CONSUMPTION AREAS

TOP-DOWN AND BOTTOM-UP

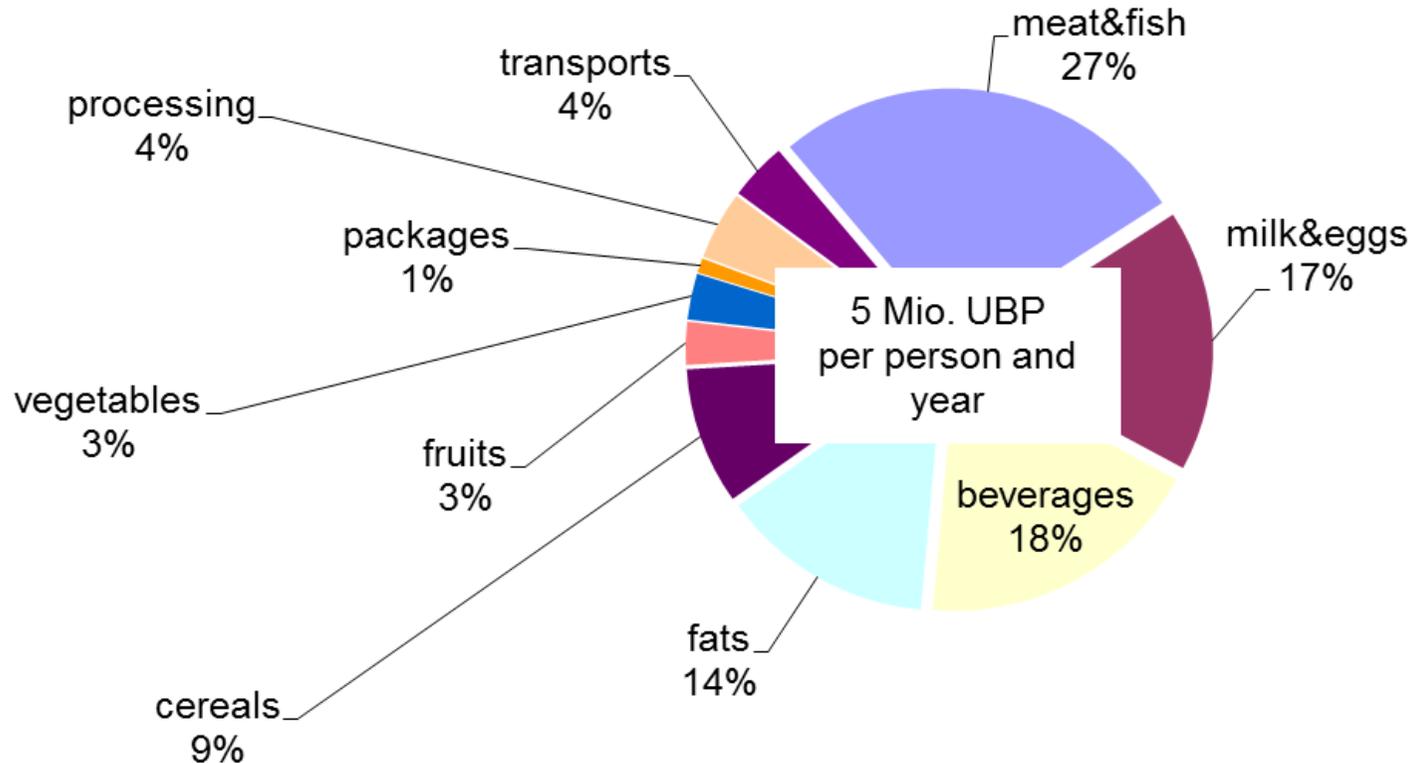
ASSESSMENT WITH LCA AND COMPARISON WITH EE-IOA

Environmental impacts of food purchases



- Top-Down and bottom-up come to comparable results
- Further analysis of consumption areas based on LCA and statistics

Product groups within nutrition



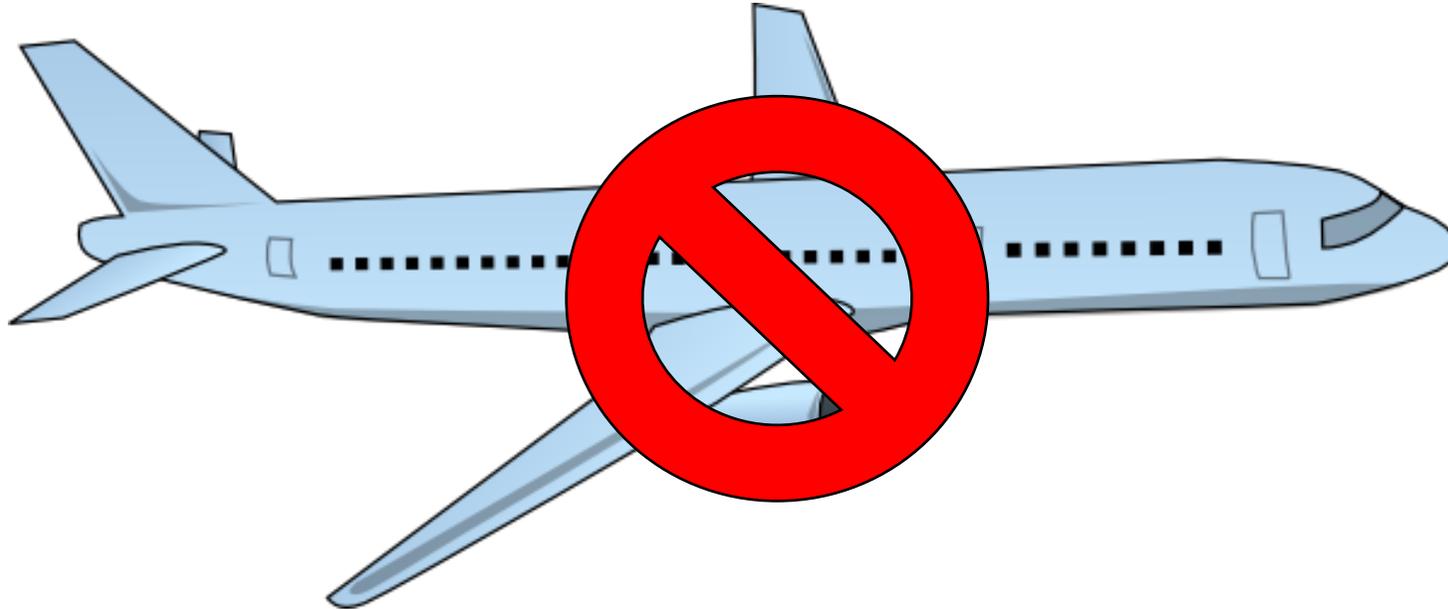
- Meat and animal products cause 44% of total impacts
- Wine, coffee and beer are important for beverages

4.

REDUCTION POTENTIALS

**ANALYSIS OF EIGHT SINGLE CHANGES IN FOOD
CONSUMPTION**

Buy locally



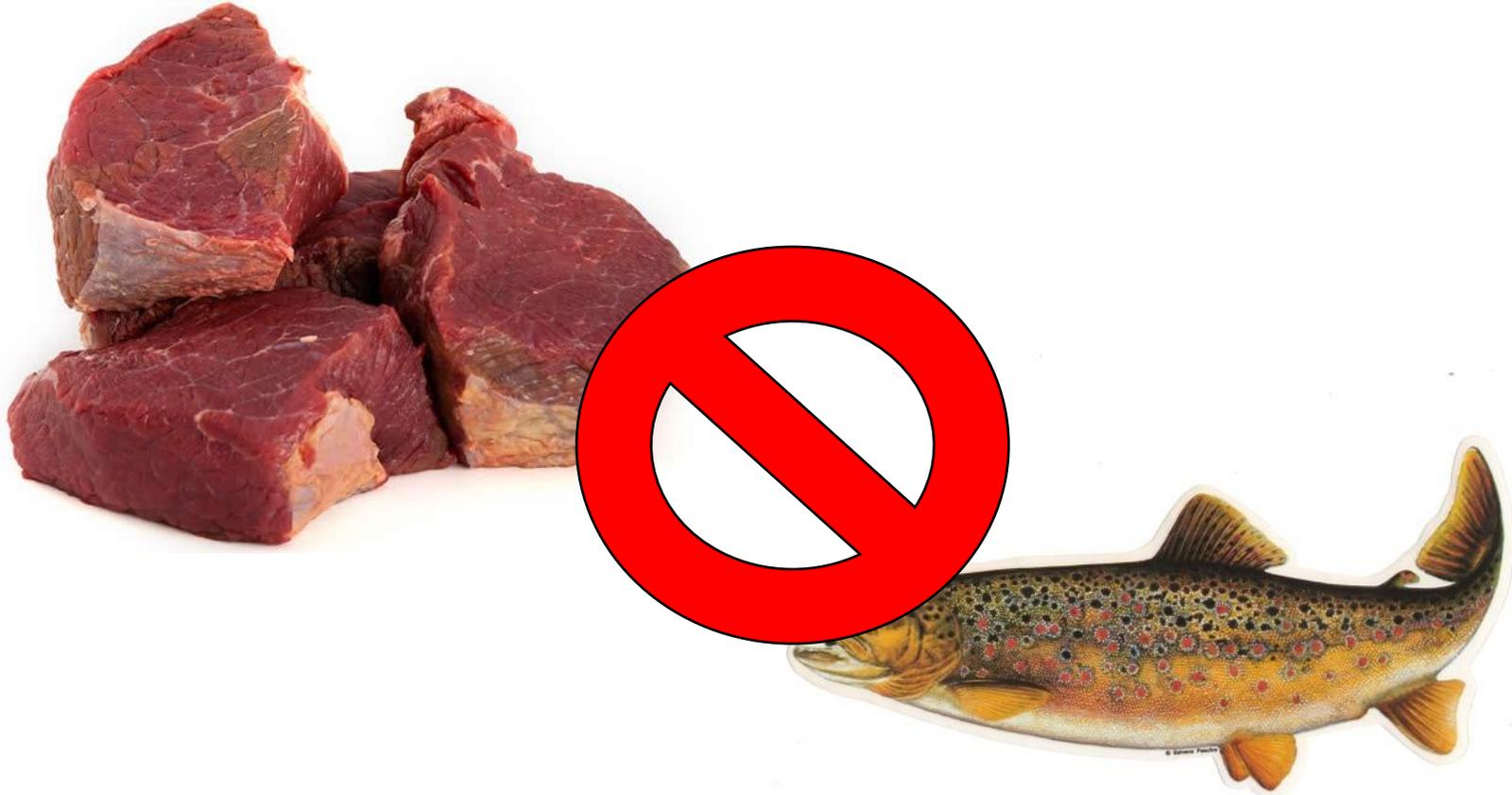
- Switzerland imports 50% of food: No full self-supply possible
- NO airplane transports is modelled as “locally” option

Buy seasonally



➤ No fruits and vegetables from heated greenhouses

Eat vegetarian



➤ No meat and fish products



Organic food products



- The whole food basket from organic production
- No heated greenhouses and air-transports
- Extra import-transports because of lower yields

Resign on luxury food



- No consumption of coffee, alcohol and chocolate

No food wasted by consumers



➤ Consumers do not throw away food

Reduce obesity to normal weight



- About 37% of Swiss population is overweight
- Recommended diet for everyone

Healthy and environmentally friendly diet



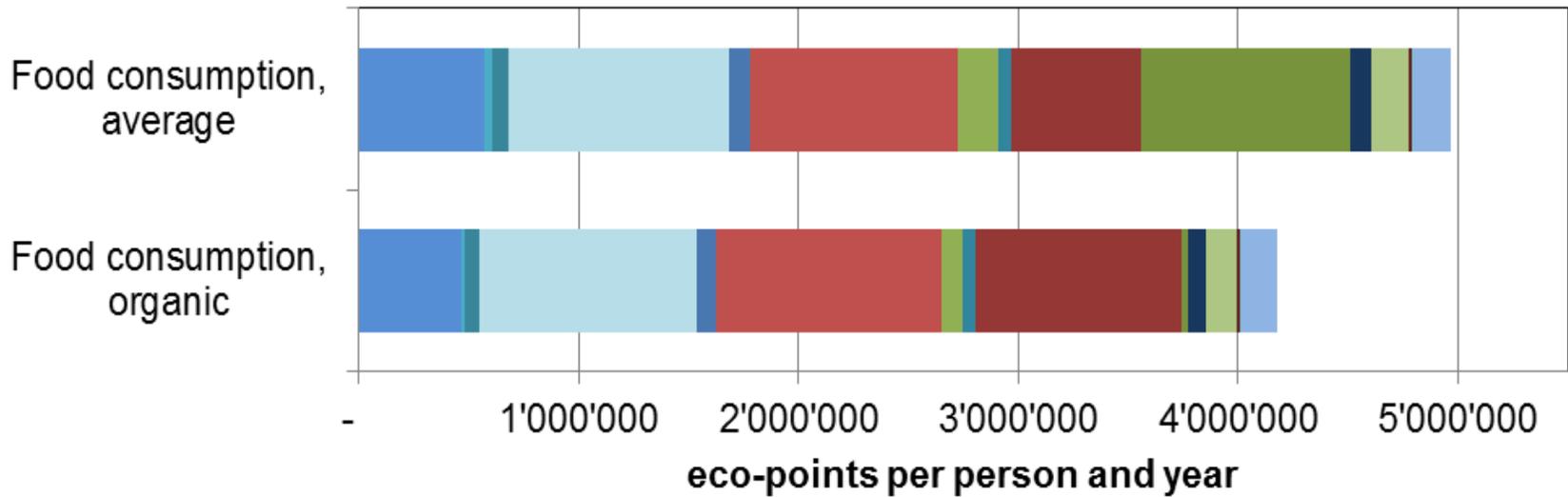
- Combine different changes like reduced meat and luxury product consumption, seasonal and local

4.

REDUCTION POTENTIALS

**ESTIMATION WITH LITERATURE REVIEW AND OWN
CALCULATIONS**

Buy Organic products



- air, IPCC GWP 100a
- air, acidification
- water, eutrophication
- water, toxic hydrocarbons
- resources, energy
- resources, water use
- air, ozone depletion, UNEP 2000
- air, human health
- water, heavy metals
- soil, heavy metals
- resources, land
- air, NMVOC
- air, heavy metals
- water, radioactive
- soil, plant protection products
- resources, mineral
- waste

➤ Reduction potential about 16% if only organic food is bought

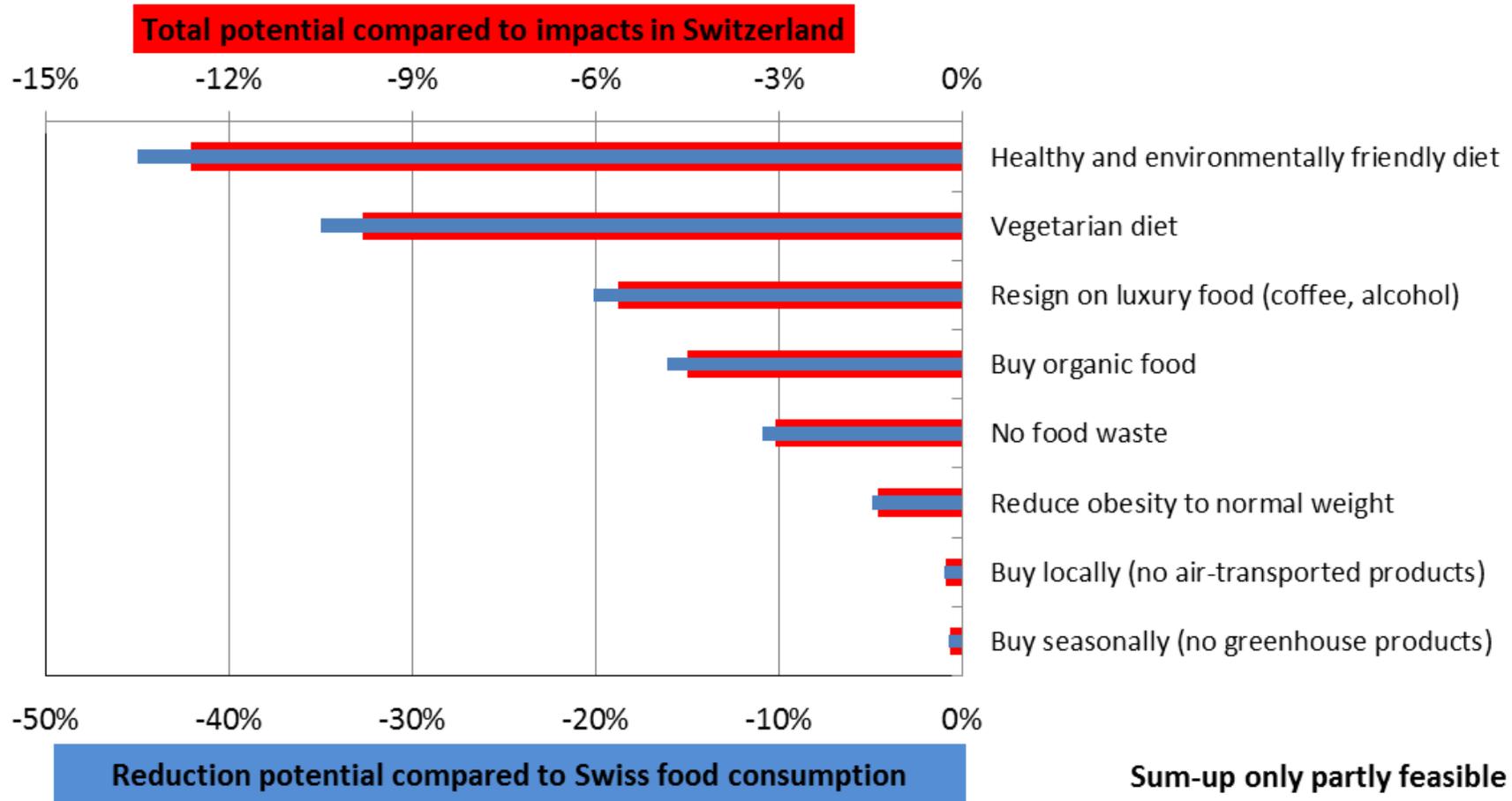
5.

TOTAL POTENTIALS

ANALYSIS FOR THE PRESENT SITUATION IN SWITZERLAND

Total potential for reduction of impacts

Multiplying Reduction Potential and Share of Consumption Area



- Most relevant is a reduction of animal products
- Buying local/seasonal low potential because only vegetables and fruits affected

Summary

- Our methodology allows to investigate and compare the impacts of behavioural changes in all areas of consumption
- Most important are the areas of nutrition, mobility and energy use in households
- Combination of EE-IOA for broad overview and LCA for detailed analysis is feasible
- The highest potential within the area of food consumption exist for a healthy combination of less animal and luxury products and purchase of organic produced food items, without wastage

Thanks for financial contributions:
WWF Switzerland
Energieforschung Zurich - ewz-
electricity supply Zurich
Swiss Federal Office for the
Environment, FOEN

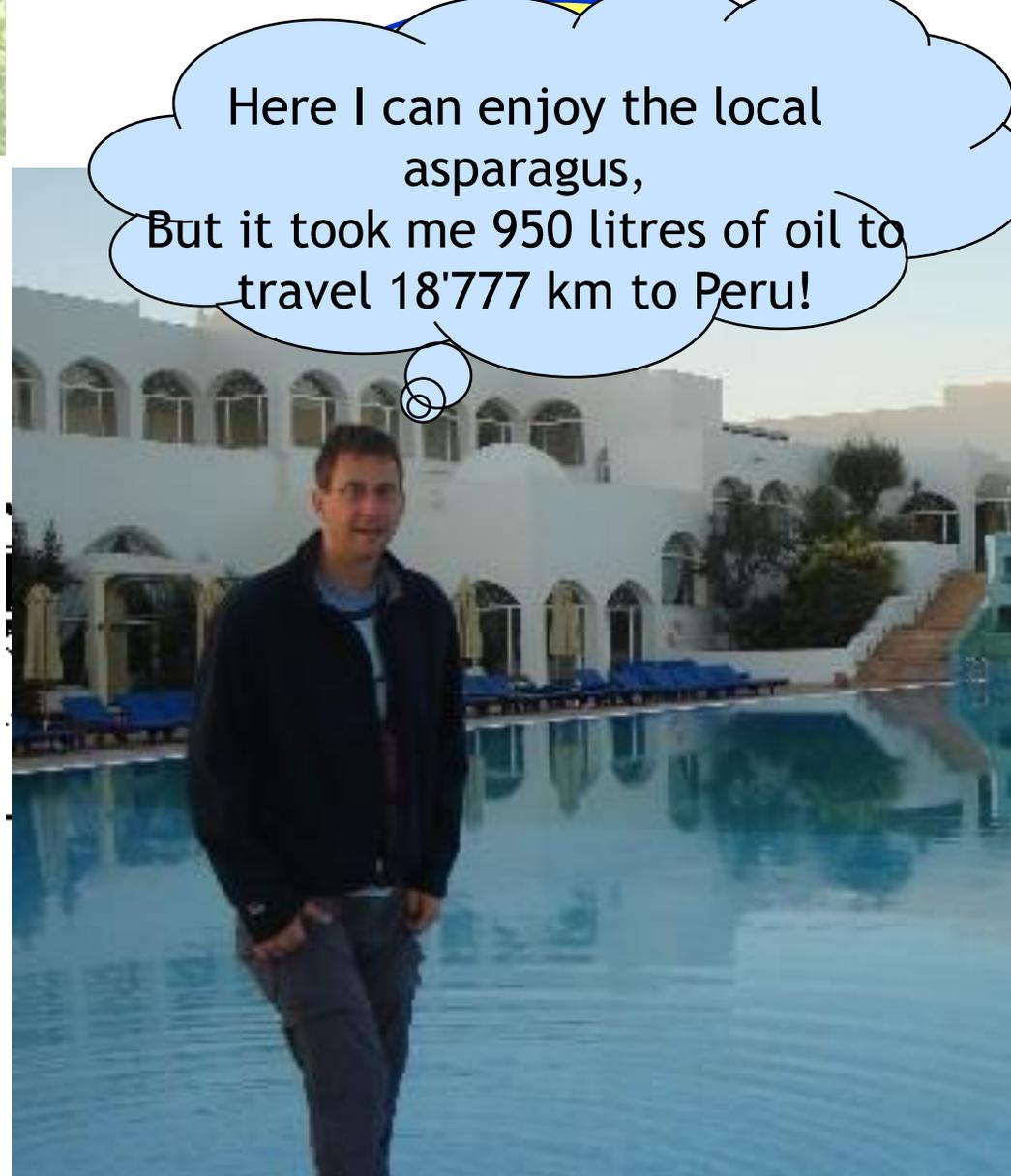
Further information about the projects
www.esu-services.ch/projects/lifestyle/

WWF Footprint calculator to be updated with
the data
www.footprint.ch

Download of the background study and
electronic data
www.esu-services.ch/projects/iaa/

ESU data-on-demand for
food production and consumption
www.esu-services.ch/data/data-on-demand/

Discussion forum LCA on
sustainable consumption
www.esu-services.ch/news/df/#c833



Here I can enjoy the local
asparagus,
But it took me 950 litres of oil to
travel 18'777 km to Peru!

- The relevance of single decisions
has to be taken into account