

# Sustainability assessment of food waste prevention measures

Thomas Schmidt & Yanne Goossens - Thünen Institute, Germany

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Topic 5 Innovative tools and system approaches to reduce Food Loss & Waste, and its impact on water and energy use

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Riyadh

Kingdom of Saudi Arabia

**Which initiative / action / prevention measure can be recommended?**



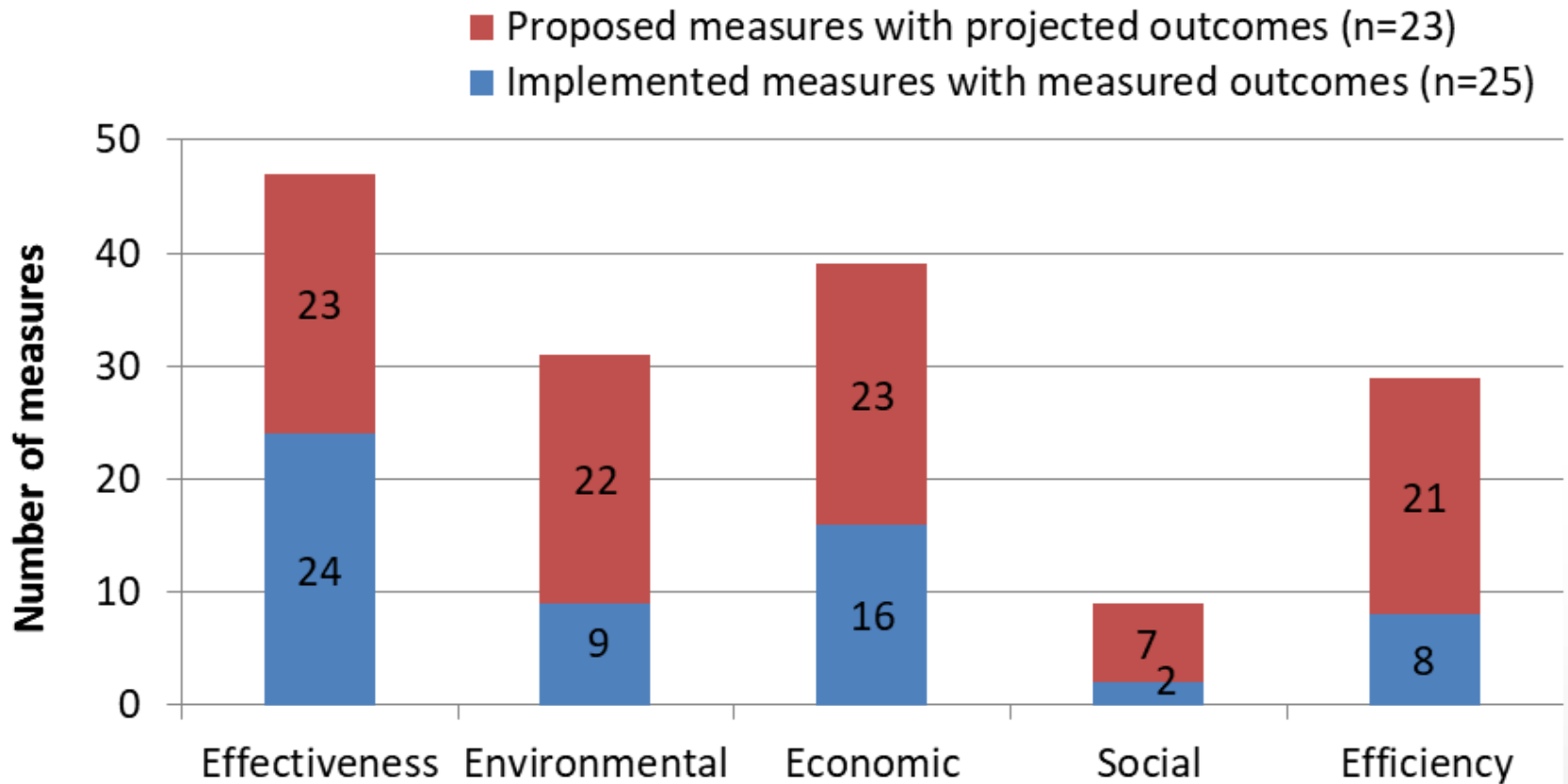
# Background

- aims**
- SDG Target 12.3 > halve food waste **[weight, fresh mass]**
  - national strategies > achieve the target
  - (research) activities > finding instruments, appropriate measures

- politics**
- campaigns /media, schools, ..
  - funding /companies, associations, research, ..
  - regulatory law /taxes, fees, legal interdictions, ..

What is the knowledge base for making decisions, for the selection of measures?  
How do we **EVALUATE**; which **MEASURES** should be prioritised?  
..derived from which **INDICATORS**?

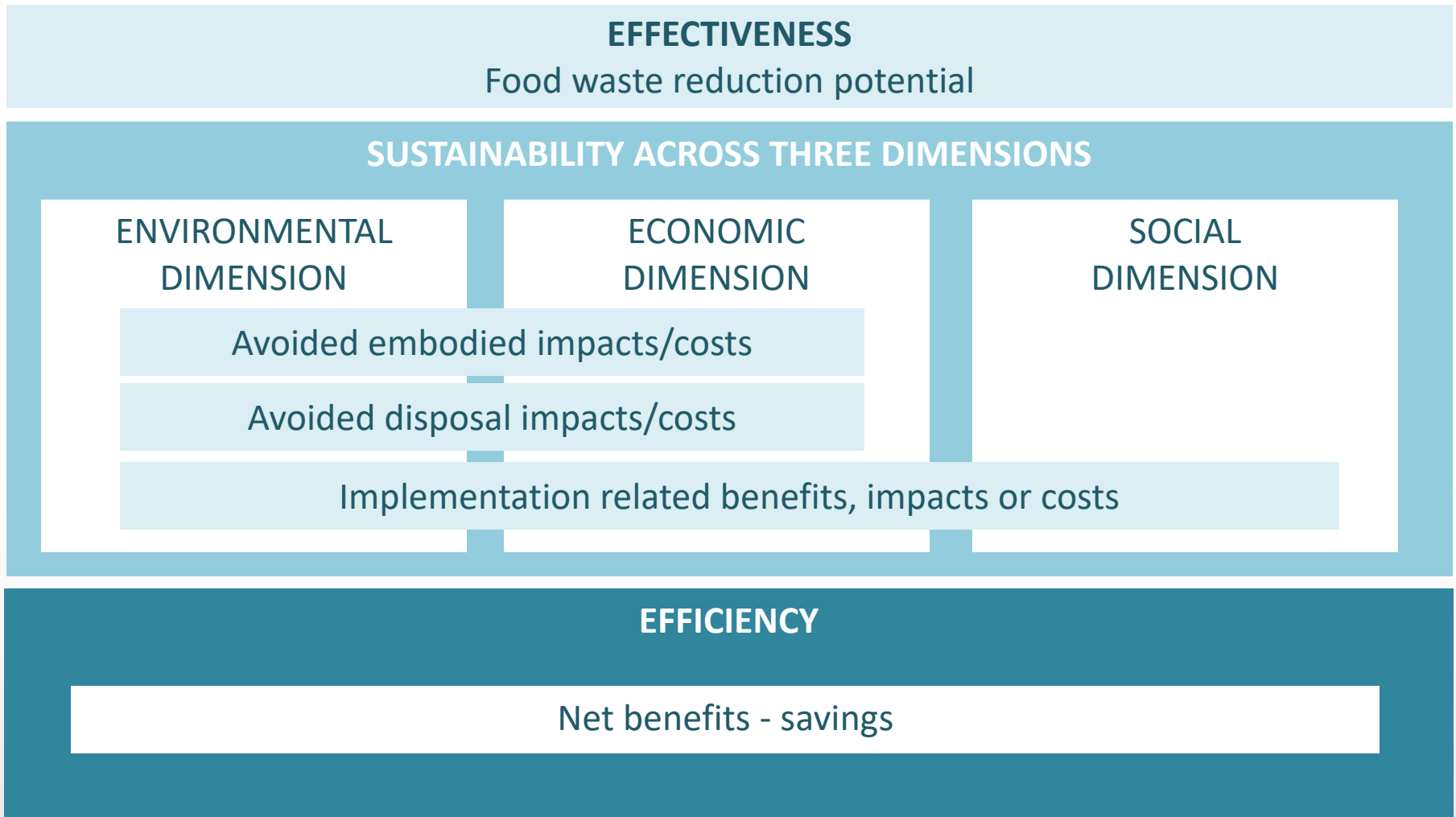
# Background - state of the art



**Aspects considered in the evaluation of food waste prevention measures**

(Goossens, Wegner, Schmidt, 2019)

# Method - suggested



(Goossens, Wegner, Schmidt, 2019)

# Factsheet – FLW measures

## **i. Description of measure**

- Problem identification; definition of aims, objectives and baseline

## **ii. Food waste reduction**

- Types, quantities, waste collection and treatment

## **iii. Sustainability evaluation**

- Economic-, environmental-, social effects: net benefits and savings

## **iv. Taking the measure into the future**

- Sustainability over time
- Transferability and scalability
- Inter-sectorial cooperation
- Key success factors and barriers

## **v. Data quality of the data collected**

- Rating score: complete/not available

(Caldeira, De Laurentiis, Sala, 2019)

# FACTSHEET - Food waste reduction and sustainability



Food waste prevented



Edible food waste savings (kcal)

## RESOURCES

### Implementation related inputs

Monetary investments

Additional resources

Employment, labour

## RESULTS - SAVINGS

### Avoided food waste

Purchasing value of food

Product-impacts (throughout the life-cycle)  
*water footprint, carbon footprint*

### Avoided food waste disposal

Disposal costs

Disposal impacts

### Implementation related savings

Monetary savings

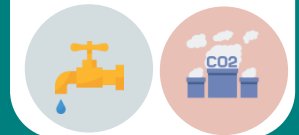
Other resource savings

Job creation  
Food donation

## NET BENEFITS

Net monetary savings

Net resource savings



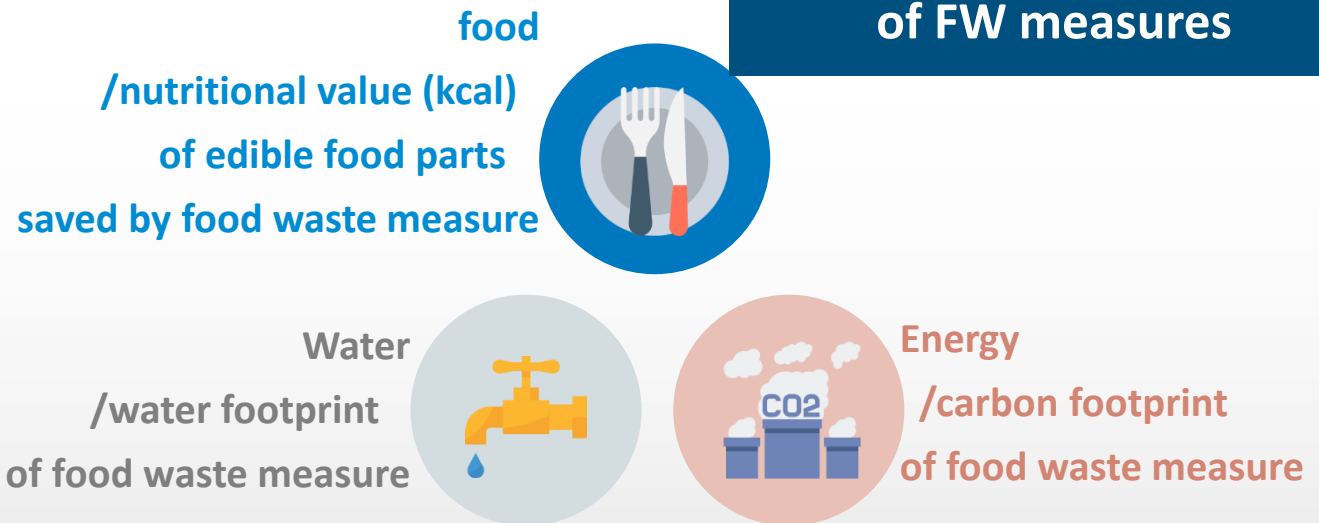
Net social benefits

# Conclusion



Sustainable development consider not only the waste reduction but also (implementation) costs, relevant ecological indicators and social effects!

The water-energy-food  
nexus footprint  
of FW measures





# Sustainability assessment of food waste prevention measures

Dr. Thomas G. Schmidt  
Thünen Institute of Market Analysis  
Bundesallee 63  
38116 Braunschweig  
Germany  
Phone 0049 531 596 5507  
Mail [thomas.schmidt@thuenen.de](mailto:thomas.schmidt@thuenen.de)  
Web <http://www.thuenen.de>



# References

Caldeira C, De Laurentiis V, Sala S (2019) Assessment of food waste prevention actions. Development of an evaluation framework to assess performance of food waste prevention actions. JRC Technical Reports. Luxembourg: Europäische Union, [http://publications.jrc.ec.europa.eu/repository/bitstream/JRC118276/caldeira\\_et\\_al\\_2019\\_del2\\_online.pdf](http://publications.jrc.ec.europa.eu/repository/bitstream/JRC118276/caldeira_et_al_2019_del2_online.pdf)

Goossens Y, Wegner A, Schmidt TG (2019) Sustainability Assessment of Food Waste Prevention Measures: Review of Existing Evaluation Practices. *Front. Sustain. Food Syst.* 3:90, DOI:10.3389/fsufs.2019.00090, <https://www.frontiersin.org/articles/10.3389/fsufs.2019.00090/pdf>

## Related work by Thünen Institute on this topic:

Goossens, Y, Schmidt TG, Kuntscher, M (2020) Evaluation of Food Waste Prevention Measures—The Use of Fish Products in the Food Service Sector. *Sustainability*, 12, 6613. <https://www.mdpi.com/2071-1050/12/16/6613/pdf>

Schmidt TG, Baumgardt S, Blumenthal A, Burdick B, Claupein E, Dirksmeyer W, Hafner G, Klockgether K, Koch F, Leverenz D, Lörchner M, Ludwig-Ohm S, Niepagenkemper L, Owusu-Sekyere K, Waskow F (2019) Wege zur Reduzierung von Lebensmittelabfällen - Pathways to reduce food waste (REFOWAS). Thünen Institute, Thünen Report 73, Vol. 1&2, DOI:10.3220/REP1569247044000. [https://literatur.thuenen.de/digbib\\_extern/dn061368.pdf](https://literatur.thuenen.de/digbib_extern/dn061368.pdf) (with english short version and summary)

ELoFoS-Homepage: <https://elofos.de> – example of factsheet for evaluating FLW measures: [https://elofos.de/images/PDFs/2019\\_11\\_06\\_Factsheets\\_-\\_Evaluation\\_of\\_FW\\_measures.pdf](https://elofos.de/images/PDFs/2019_11_06_Factsheets_-_Evaluation_of_FW_measures.pdf)