A questionnaire for calculating ecological footprint

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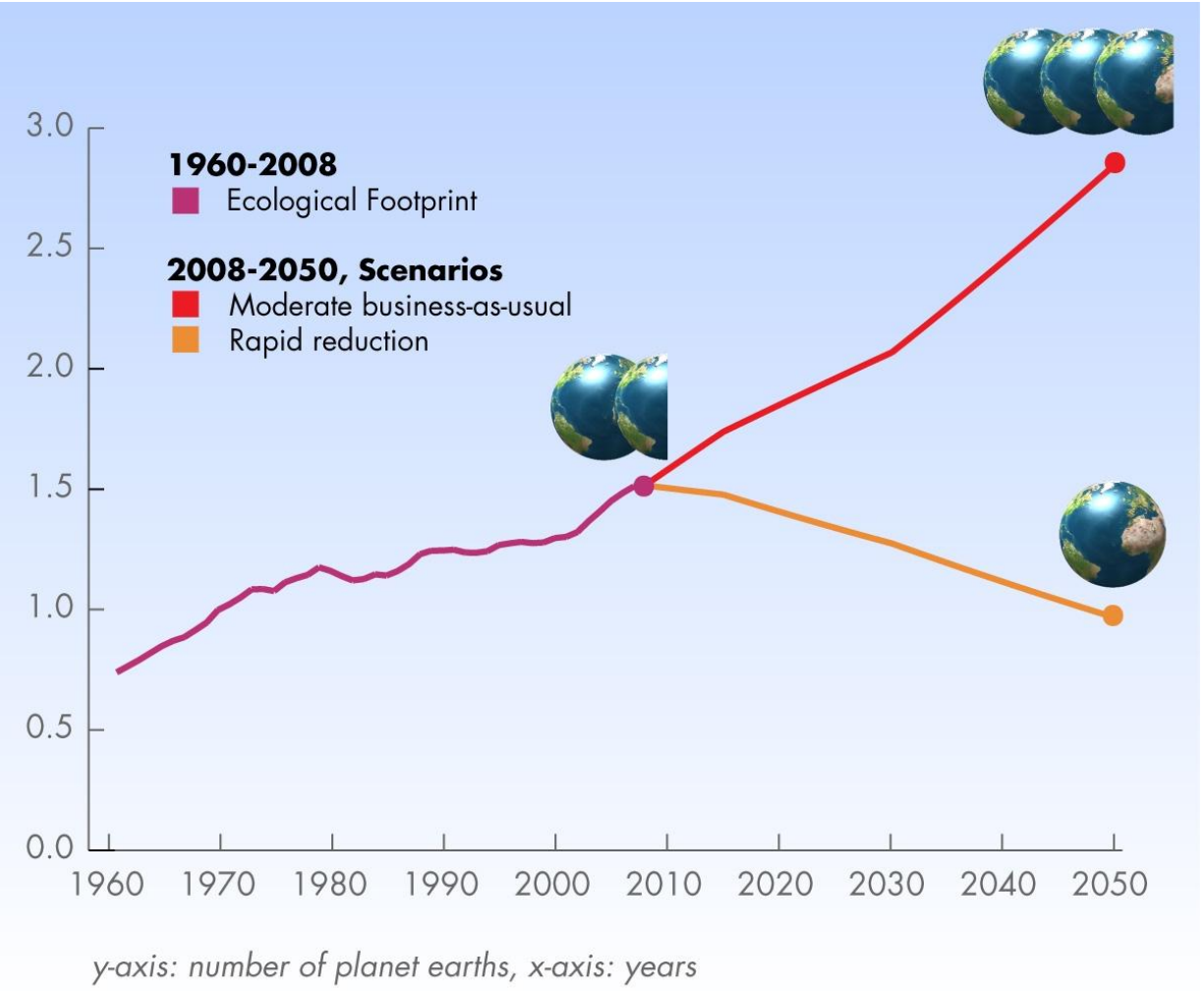
Introduction

- Update of existing footprint calculator on www.footprint.ch
- More options and broader range of results

Ecological Footprint (1)



CH: 2.8 planets

GLO: 1.5 planets

Target: 1 planet

Source:

Global Footprint Network

www.footprintnetwork.org

- The ecological footprint is continously increasing during the last decades

Ecological Footprint (2)

1.8 global hectares per person = 1 planet (2006)

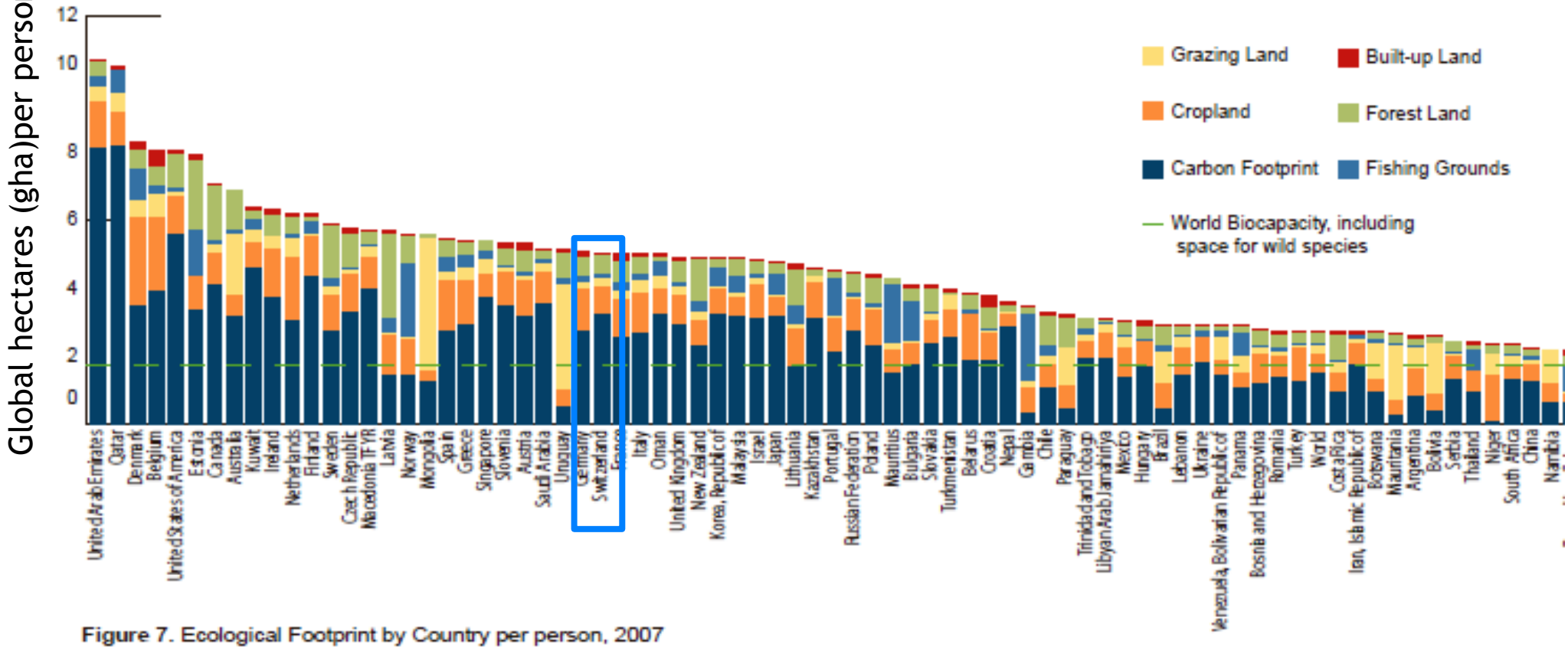


Figure 7. Ecological Footprint by Country per person, 2007

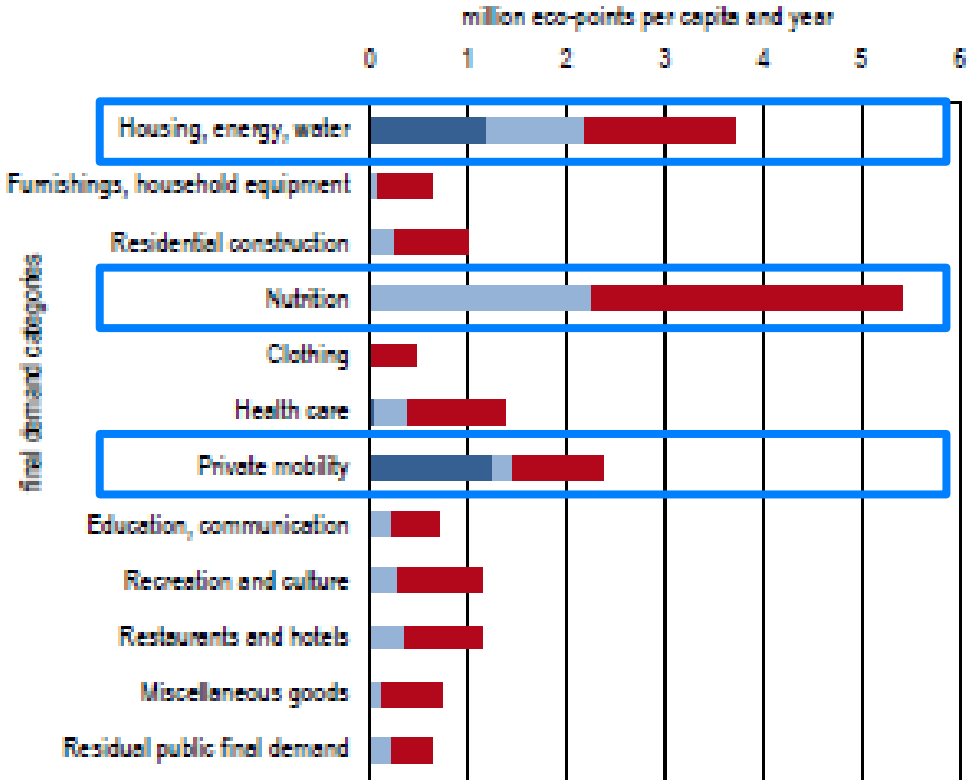
- Switzerland is on rank 27 in the ecological footprint ranking

Sets of questions (1)

- Based on catalogue of existing calculator
- Refined with additional key questions and further options leading to a broader range of results
- Option to enter specific values for the energy consumption (detailed version)

Set of questions (2)

- 28 Questions covering the most important consumption sectors
- 6 Questions on nutrition
- 6 Questions on private mobility
- 13 Questions on housing and energy



Data base

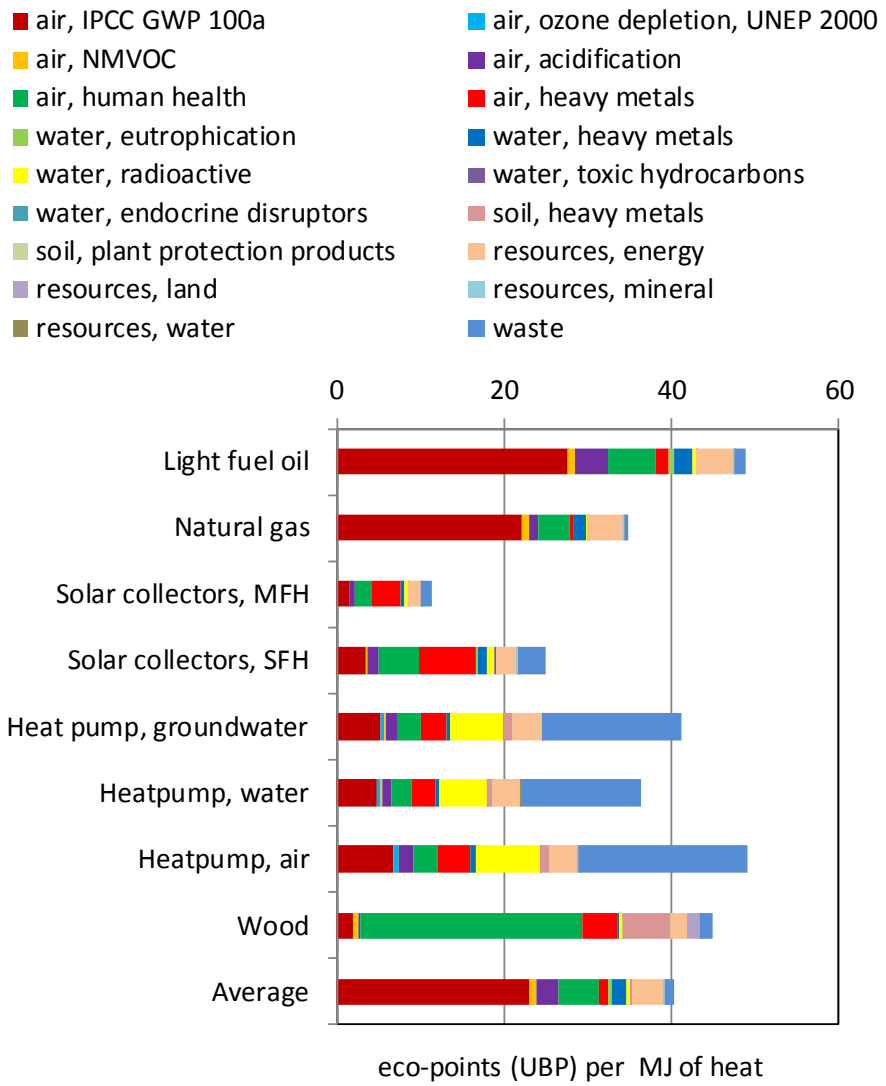
- Jungbluth et al. (2012) – Environmental impacts of private consumption and reduction potentials
  http://www.esu-services.ch/projects/lifestyle/
  http://www.esu-services.ch/projects/ioa/
- Global Footprint Network (www.footprintnetwork.com)
- ecoinvent Centre (2010). ecoinvent data v2.2, Duebendorf, Switzerland, Swiss Centre for LCI
- LC-inventories (2012). Corrections, updates and extensions of ecoinvent data v2.2, ESU-services Ltd.

Indicator

- For communication: ecological footprint (Global Footprint Network)
- For calculation: Swiss ecological scarcity 2006
- Using the Swiss average budget for conversion (Jungbluth et al. 2011)
- 20 Mio eco-points = 2.8 planets

Calculations

- Average of each consumption category scaled according to LCA data
- Consumption sectors are calculated top down (Input-Output-Analysis)
- Deviation from the average calculated based on LCA results
- Hybrid approach between Input-Output-Analysis (average) and LCA (deviation from average)



Energy consumption

	Energy consumption in Swiss households 2005 (BFE 2006)	Shares of the different energy sources
Unit	MJ/person and year	%
Electricity	8'506	23.9%
Light fuel oil	17'403	48.8%
Natural gas	6'407	18.0%
Wood logs	54	0.2%
District heat	2'484	7.0%
Solar collectors	784	2.2%
Total per inhabitant	35'638	100.0%
Inhabitants	7'459'128	

- Swiss average based on Swiss energy statistics

Mobility consumption

	Swiss average (Mikrozensus, BFS/ARE 2007)	Share of travelled distance
Unit	pkm/person and year	%
Passenger plane	2'456	15.2%
Coach	506	3.1%
Train	2'590	16.0%
Passenger car	9'582	59.3%
Bus	49	0.3%
Tram	718	4.4%
Trolley bus	0	0.0%
Motorcycle / Scooter	246	1.5%
Total	16'147	100.0%

- Swiss average based on Swiss mobility statistics

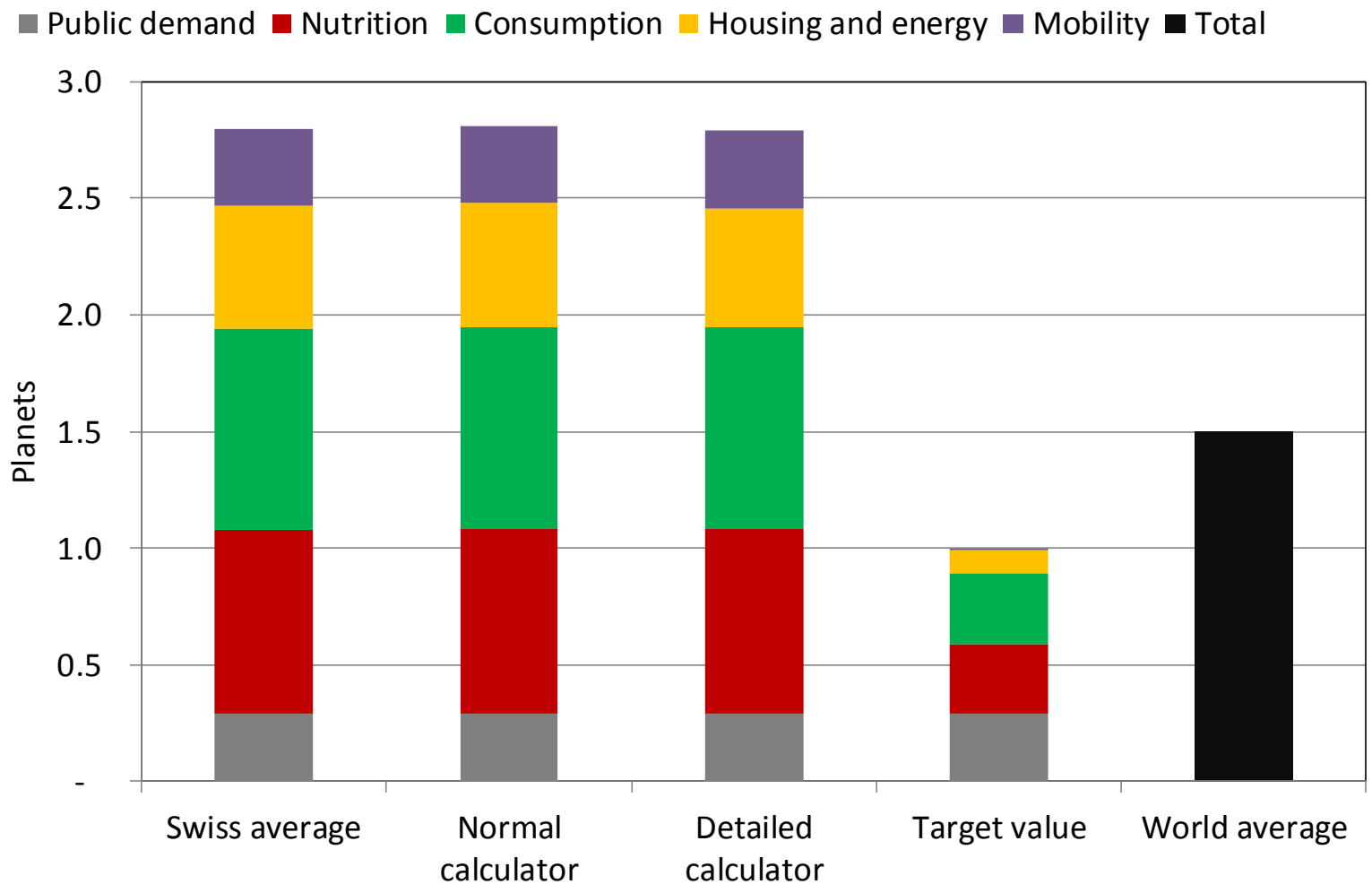
Deviation from average based on LCA results

Environmental impact relative to Swiss average

What kind of heating system are you using?	22.1	Electric heating	310%
	22.2	Light fuel oil heating	121%
	22.3	Natural gas heating	87%
	22.4	Wood pellets	91%
	22.5	Wood chips	93%
	22.6	Wood logs	112%
	22.7	Solar collectors	62%
	22.8	District heat	61%
	22.9	Heat pump	91%
	22.10	Heat pump, certified electricity	34%
	22.11	Swiss average	100%

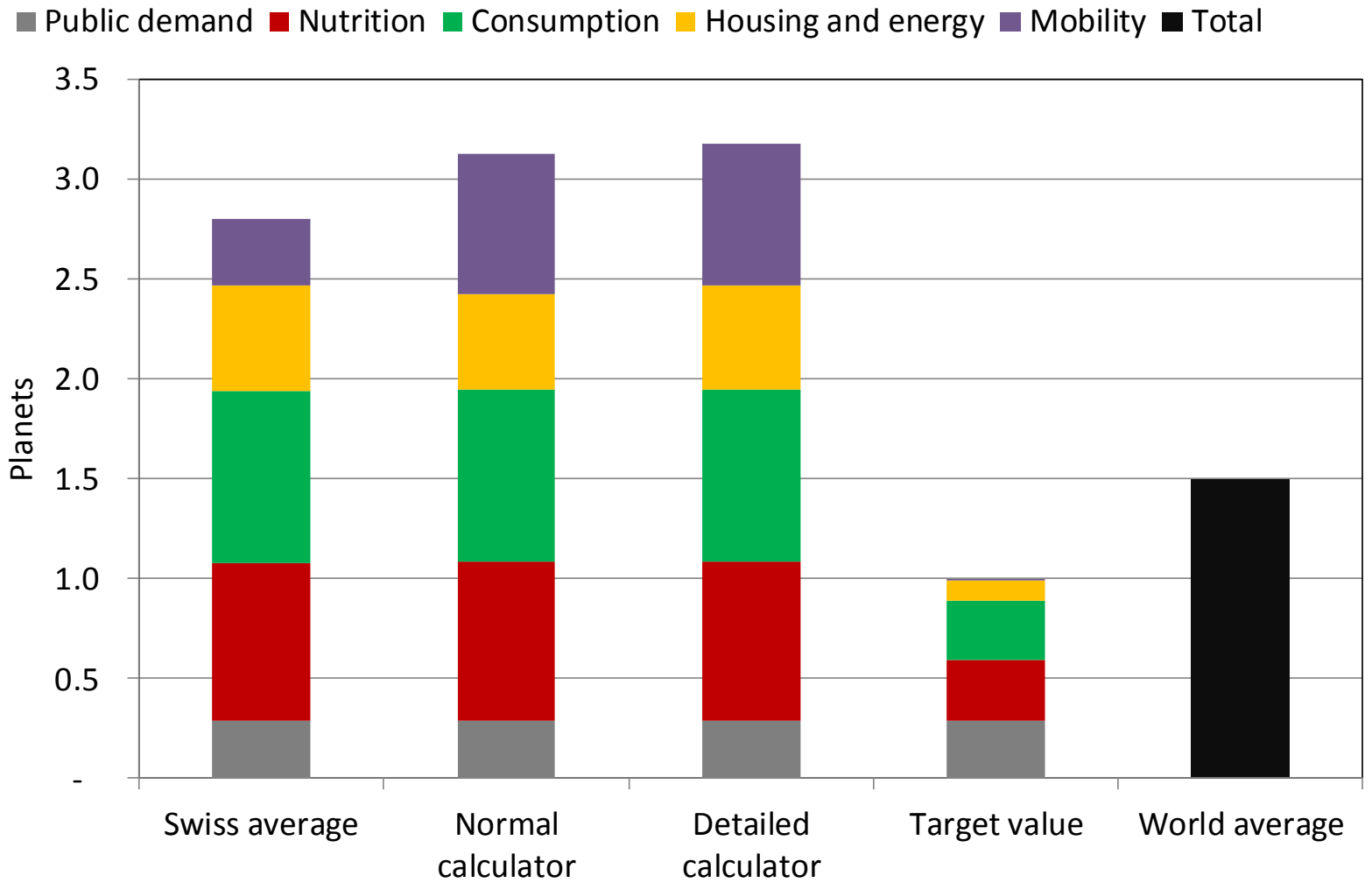
- Average result is scaled according to LCA results

Average Swiss footprint



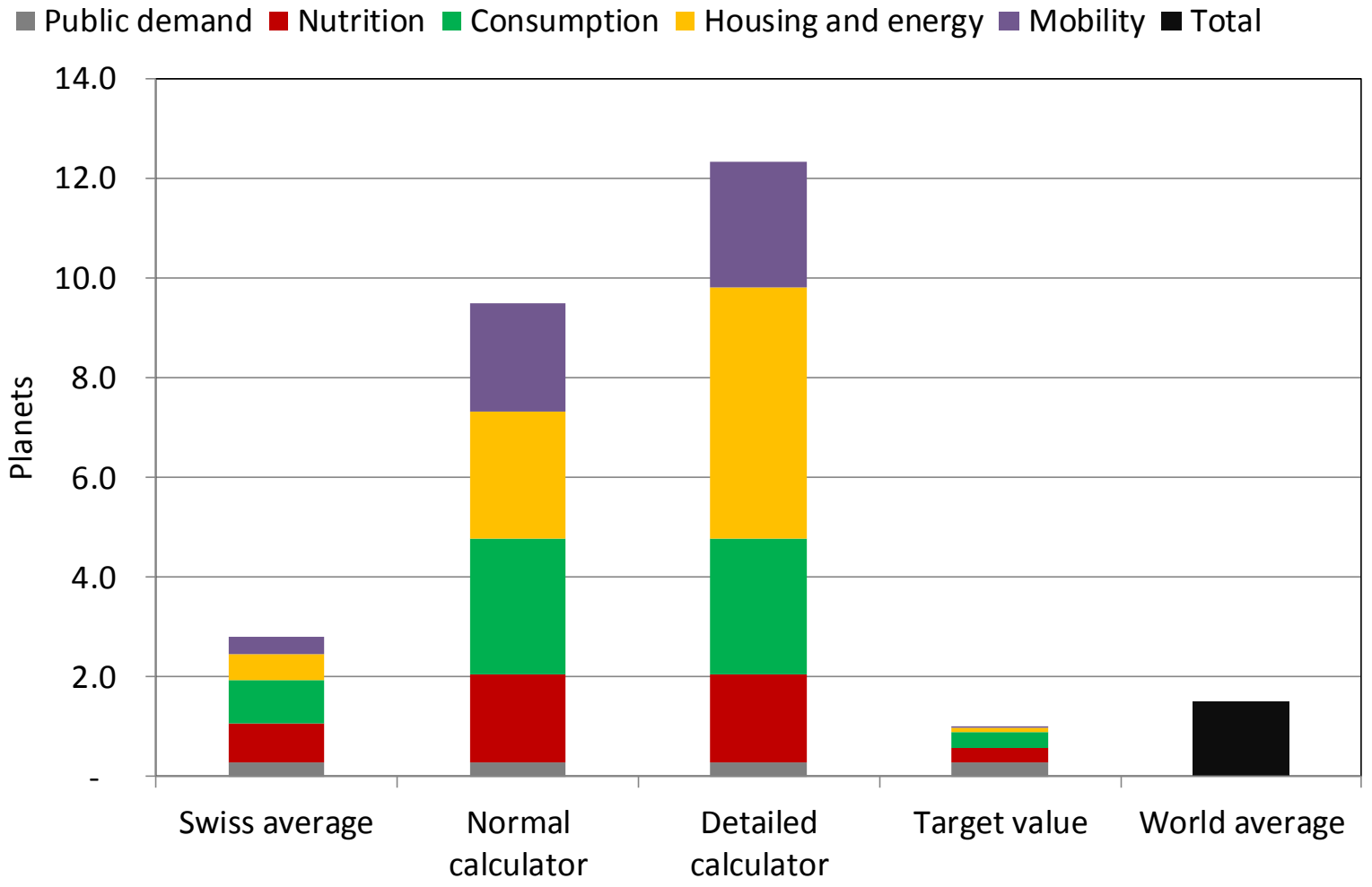
➢ The average Swiss footprint is 2.8 planets

Increase in travelled distance by plane



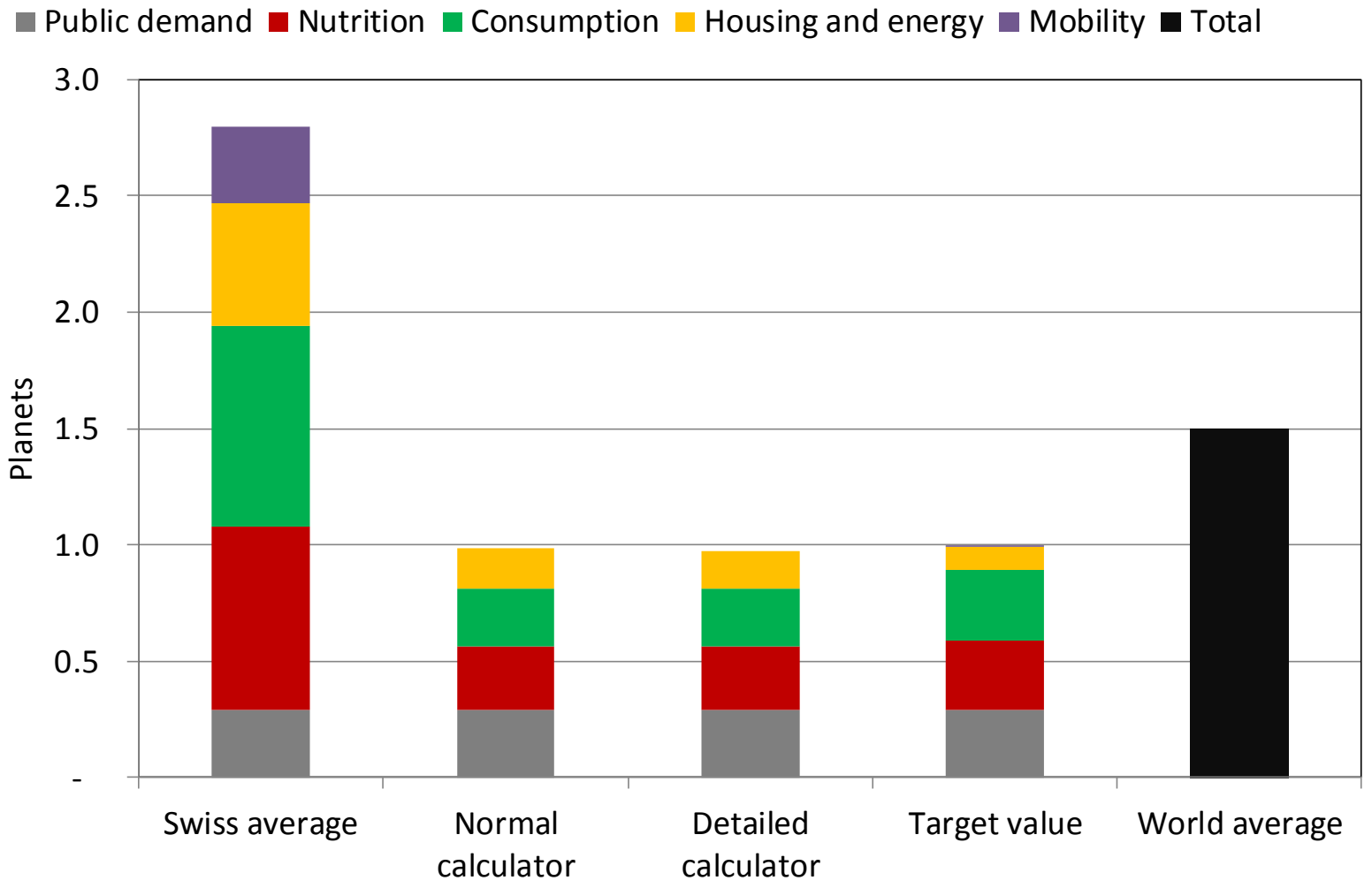
- Additional 40 flight hours per year cause an increase of 0.4 planets

Maximum footprint



- It is easy to increase the footprint (flying, dwelling area)

Minimum footprint (1)

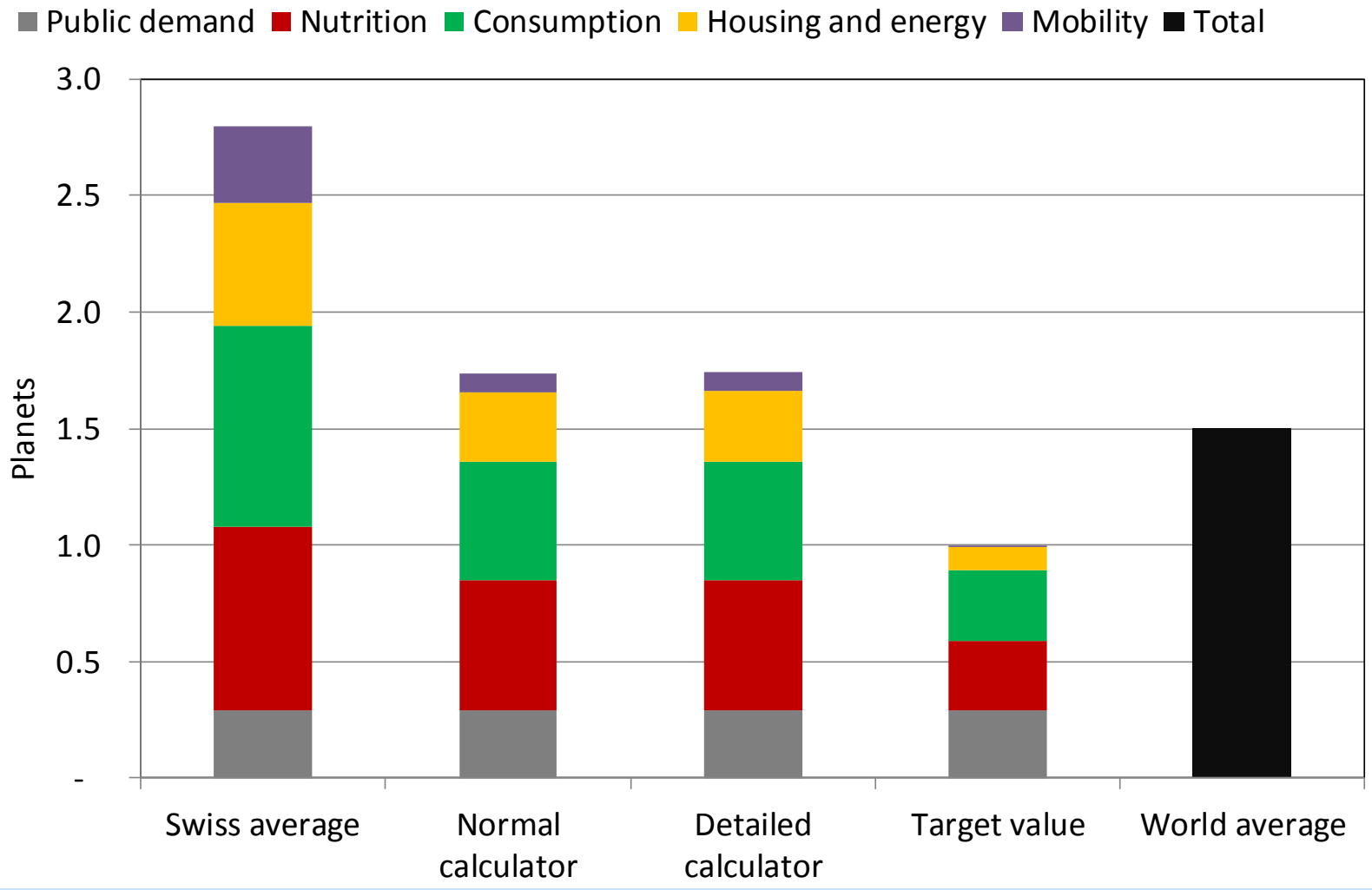


- The minimal footprint corresponds to about one planet

Minimum footprint (2)

- No motorised mobility consumption (passenger car, plane, train, bus, motorcycle)
- Vegan nutrition
- Less than 25 m^2 net dwelling area per person
- Less than 300 CHF per month for other consumption (furniture, cloths, gifts, restaurants, holidays, etc)

My footprint



➢ Feasible to reduce the footprint below the Swiss average

Limitations of the calculator

- Public demand is not affected
- Uncertainty due to conversion of eco-points into planets
- Linear scaling of the impacts assumed
- Improvements in the production and supply chains are not modelled

Conclusions

- All consumption areas covered
- Easy to reduce the footprint below the Swiss average
- Huge potential to reduce the global footprint
- Some options to reduce the ecological footprint are not covered by the calculator (more efficient production, reuse and sharing, reduced public demand)
- An ecological footprint of one planet is an ambitious goal

Thank you very much for your attention!

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www.esu-services.ch/projects/lifestyle/

www.footprint.ch

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