

Eceee 2017 Summer Study on energy efficiency

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Energy Sufficiency Policy: **How to limit energy consumption** **and per capita dwelling size** **in a decent way**

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Presentation: Dr. Stefan Thomas

- Study funded by the German Ministry of Education and Research, with Ifeu-Institut
- Looked at energy sufficiency for electricity uses in the household, the appliances, the local level
- **Definition:** With energy sufficiency, energy consumption is reduced *while the utility/technical service changes in quantity or quality*
- Multiple methods, incl. cultural probes, co-creation workshops, qualitative interviews, design criteria for appliances, analysis of energy saving potentials, focus group on gender issues, representative survey
- See also 2015 eceee Summer Study papers (Brischke et al. 2015, Thomas et al. 2015)
- This paper:
 1. Findings of the survey of 600 persons responsible for housework
 2. Results of first comprehensive analysis of an energy sufficiency policy

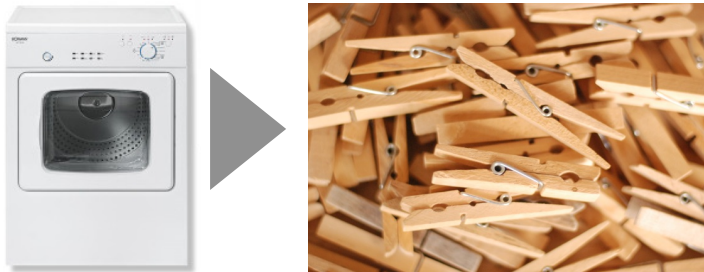
Energy sufficiency: getting a grasp by examples

Identification of 3 energy sufficiency intervention strategies



Adjustment

- of energy service delivery to actual demand
- of energy service demand to actual needs



Substitution

- of energy-intensive service by less intensive s.
- of technical service by non-technical service



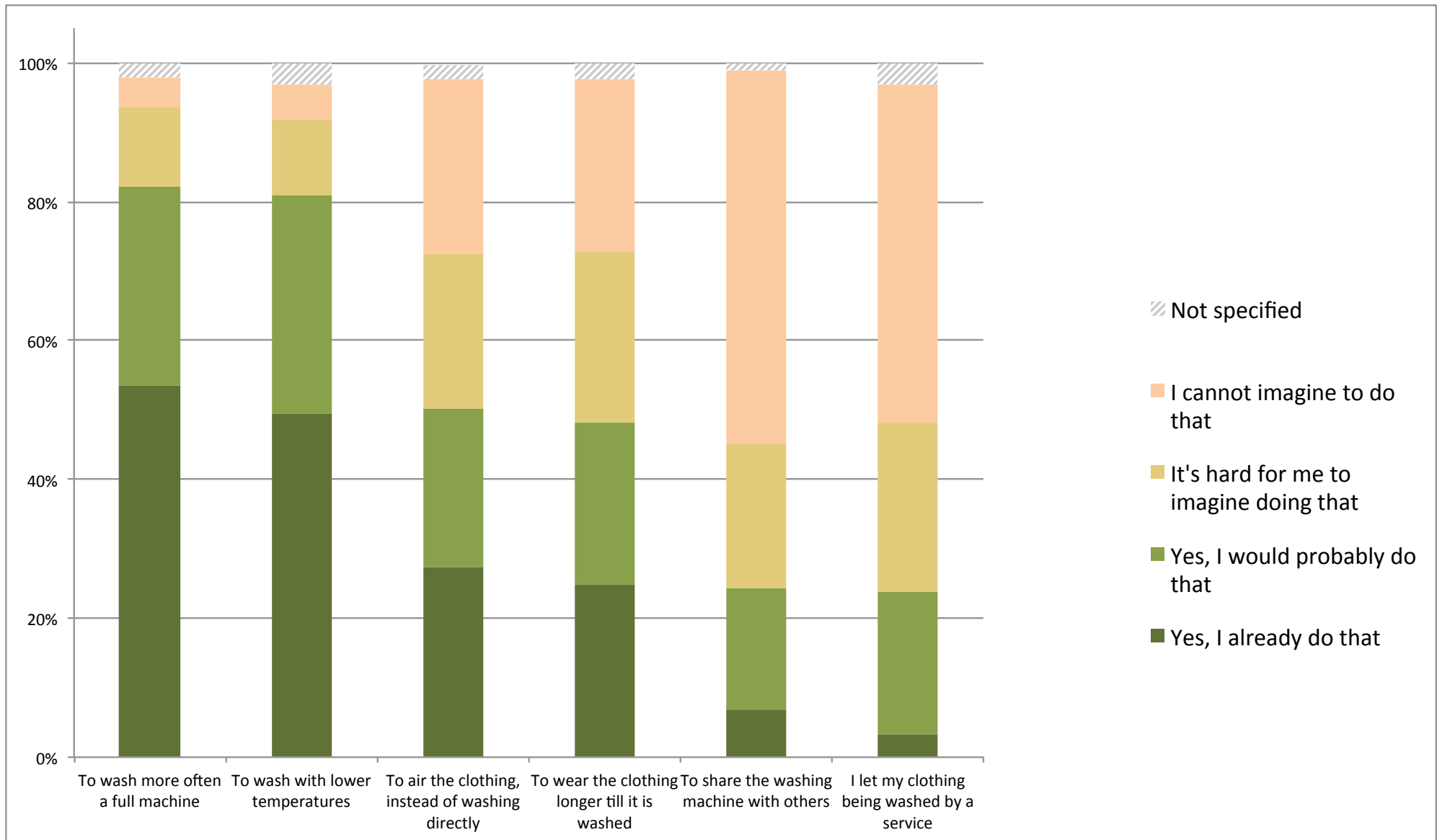
Reduction

- in size or use frequency
- often accompanied by some substitution

Image sources: Wuppertal Institut 2008; iStockphoto 2013; L. Brischke 2014

Results of the survey (1)

Energy-sufficient clothes washing practices

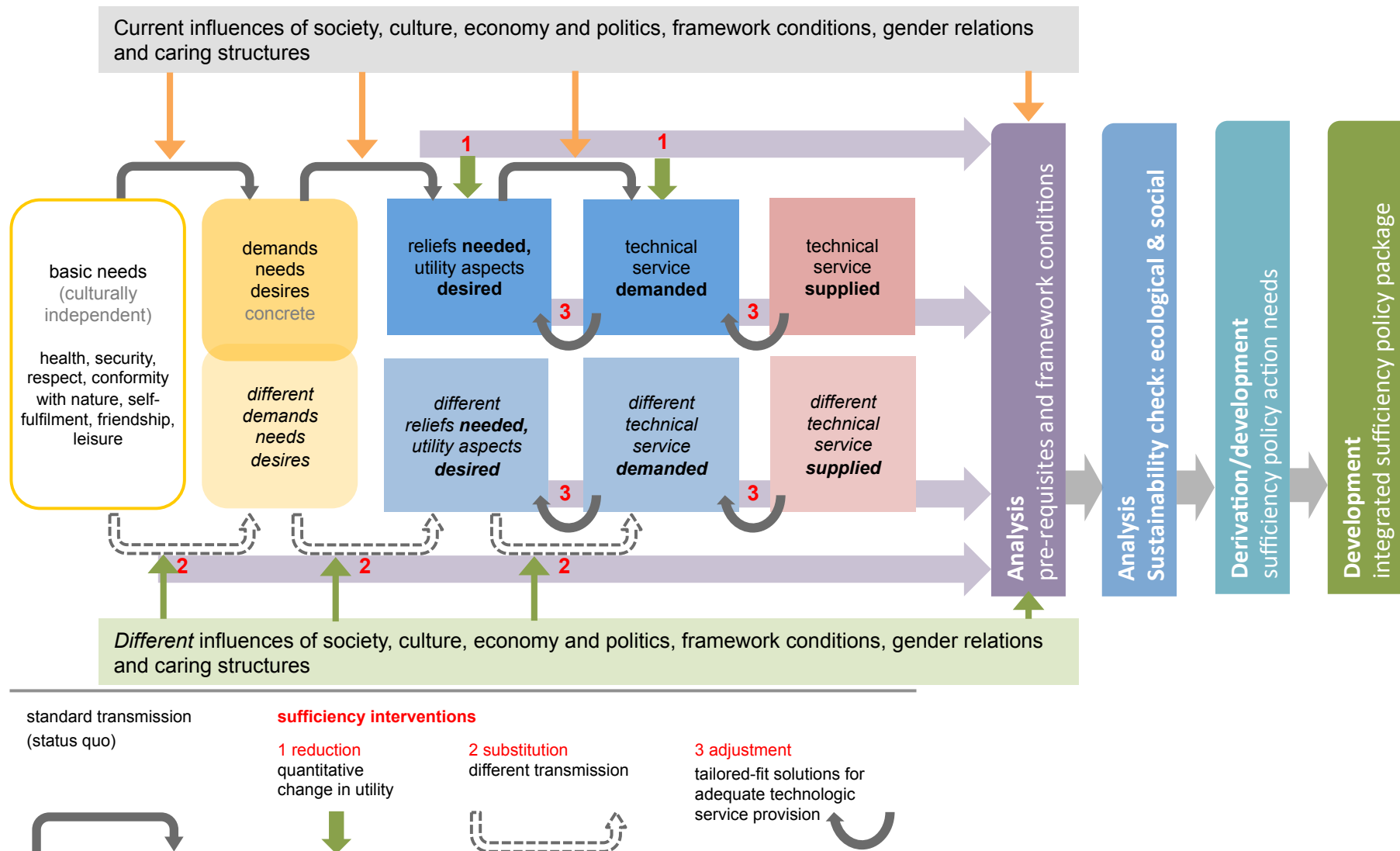


Results of the survey (2)

Living space – would people move to smaller apartments?

- Out of those, who think their apartments is just right or too big,
 - 5 % would like to move to a smaller one directly
 - 34 % under certain conditions (not leaving neighbourhood, no cost/rent increase, policy support)
 - => equals 4 and 27 % of all respondents, respectively
- If number of people reduces in the future:
 - 22 % would like to move to a smaller one directly
 - 34 % under certain conditions
 - 22 % (i.e. 13 % of all) could imagine living in a shared apartment,
 - 29 % (i.e. 17 % of all) in a multi-generation house
- => **policy** induction **potential** overall:
 - **10 to 15 %** already now
 - **17 to 23 %** with fewer persons in the household in the future

The energy service transformation chain and the steps of energy sufficiency policy analysis



Concrete energy sufficiency actions: an integrated energy efficiency and sufficiency policy

By policy type (and always sensitive to the individual vulnerabilities, restrictions):

Regulation

- Absolute consumption limits (kWh/cycle), progressive standards
- providing consumption data for all types of cycles; writing T on thermostats
- make auto-switch-off the default setting; multicompatibility for ICT appliances

Economic incentives

- For: smaller appliances, sufficient design, robust clothing, multicompatibility for ICT appliances, separation of lighting circuits, shared kitchens, ...

Changing (infra-)structural frameworks

- ensure close-by supply of fresh foods, canteens, laundry services
- at least safeguard existing drying or food storage rooms
- ensure time budgets for caring work; alternatives for ICT

Information/Campaigns (and energy sufficiency as consumer protection task)

- Promote appliances with a low absolute consumption
- communicate energy-sufficient practices for using equipment; online tool
- Individual sufficiency consultancy in the home

Overarching policy instruments:

Policy to limit the growth in dwelling space per capita

Municipal dwelling space agencies

- Advice for moving, dwelling search, (sub-)letting; a dwelling exchange facility
- Managing state grants and practical help for moving

Grants for moving to a smaller or shared dwelling

- From Federal govt. via municipalities; or utilities with electricity sales cap?

Financial support for alternative forms of housing

- From Federal govt. via municipalities; or utilities with electricity sales cap?
- New build or reconstruction for shared dwellings or alternative housing forms

A cap on dwelling floor area per person

- Limit for municipalities, which implement it, with funding from Federal govt.
- No new build without demolition, unless population grows
- Legal obligation or policy target?

Potential: avoid 0.21 bn. m² of forecast net new build by 2030

➤ **15 TWh/yr of heating fuels and 3.4 Mt of CO₂eq/yr;
plus 8.4 TWh/yr of electricity and 4.2 Mt of CO₂eq/yr?**

Overarching policy instruments: Electricity sales caps for utilities?

German env. Council (SRU) 2011: obligate utilities to reduce their absolute sales to all households => need to support households in saving electricity

Potential: up to minus 3 % per year. BUT:

Electricity or overall fuel sales cap?

Can **practical implementation problems** be solved?

=> Not an immediate solution!

=> If problems can be solved: Utilities would / could implement most of the integrated appliance policies and the dwelling space instruments (except regulation and dwelling space cap)!

However: efficiency mostly technical solutions => „more reliable“ than sufficiency?

Funding via energy prices (just as energy efficiency obligations)

Instruments mitigating the
macro drivers of energy consumption

Instruments advancing
energy sufficiency at the micro and meso level

Products

Cap on electricity sales?
Or efficiency and sufficiency funds

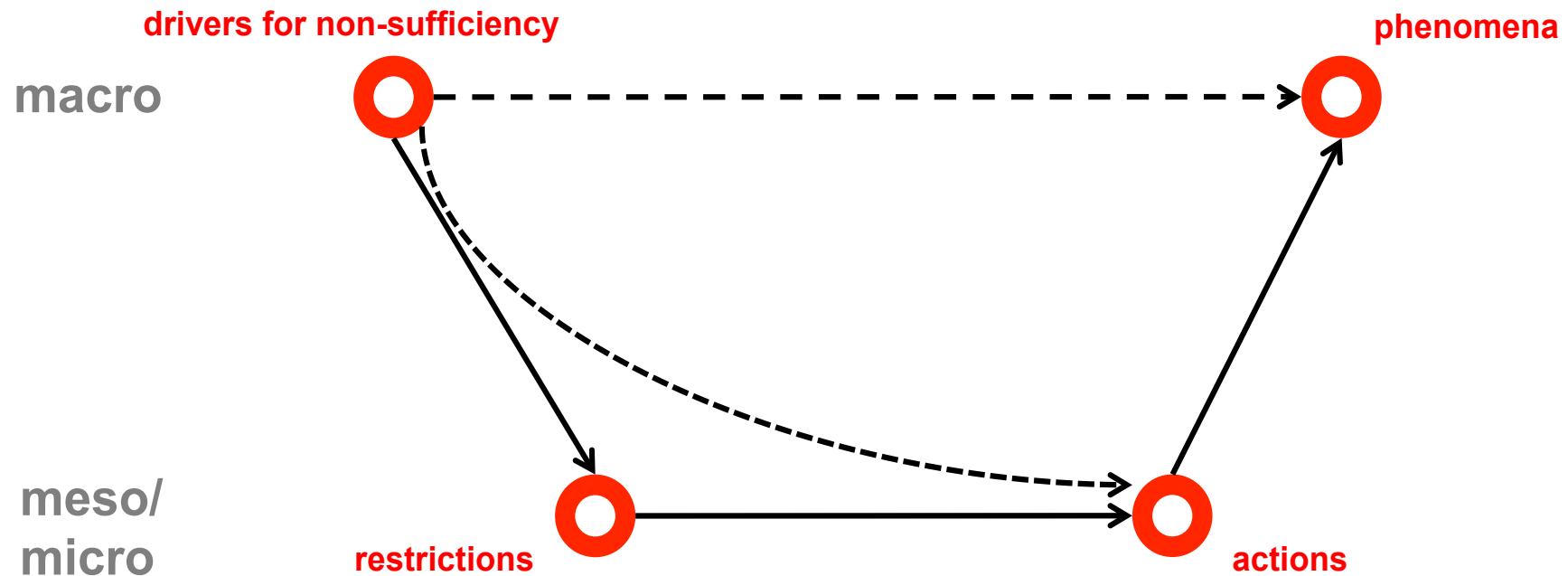
Integrated product policy for
energy efficiency and
energy sufficiency

Dwelling floor area

Cap on floor area per person:
Legally binding or policy target?

Instruments to support and inform
for new forms of housing, moving
to smaller dwellings, sharing flats

Energy sufficiency – Fostering sufficiency or mitigating non-sufficiency?



Causal chain in Coleman's macro-micro-scheme

Source: ifeu-Institute/Wuppertal Institute 2015

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Thank you
for your attention

For concrete energy uses:

Our 7-step approach towards a policy strategy

