

Four pilot projects have been implemented at UNAM: Comparison pre and post upgrade in a laboratory (Source: Seifried 2009)



	Pre-Upgrade	Post-Upgrade
Lighting	Lightbulbs	2 x 14 Watt (T5)
Ballasts	–	Dimmable, electronic
System power	100 / 150 Watt	33 Watt
Lamp	100 / 150 Watt	2 x 14 Watt
Light provided (average)	50 Lux	206 Lux
Electricity saved	–	65-75%

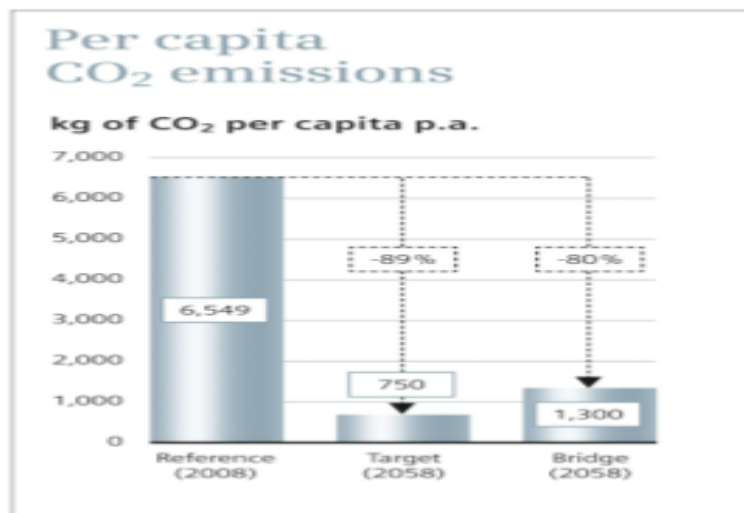
**„The Sun Ship“ in Freiburg/Germany:
„Plus Energy“ Office Buildings might be the future („Plusenergiehaus®“; Disch 2007)**



Is there a pathway to „Carbon Free Cities“? Yes!

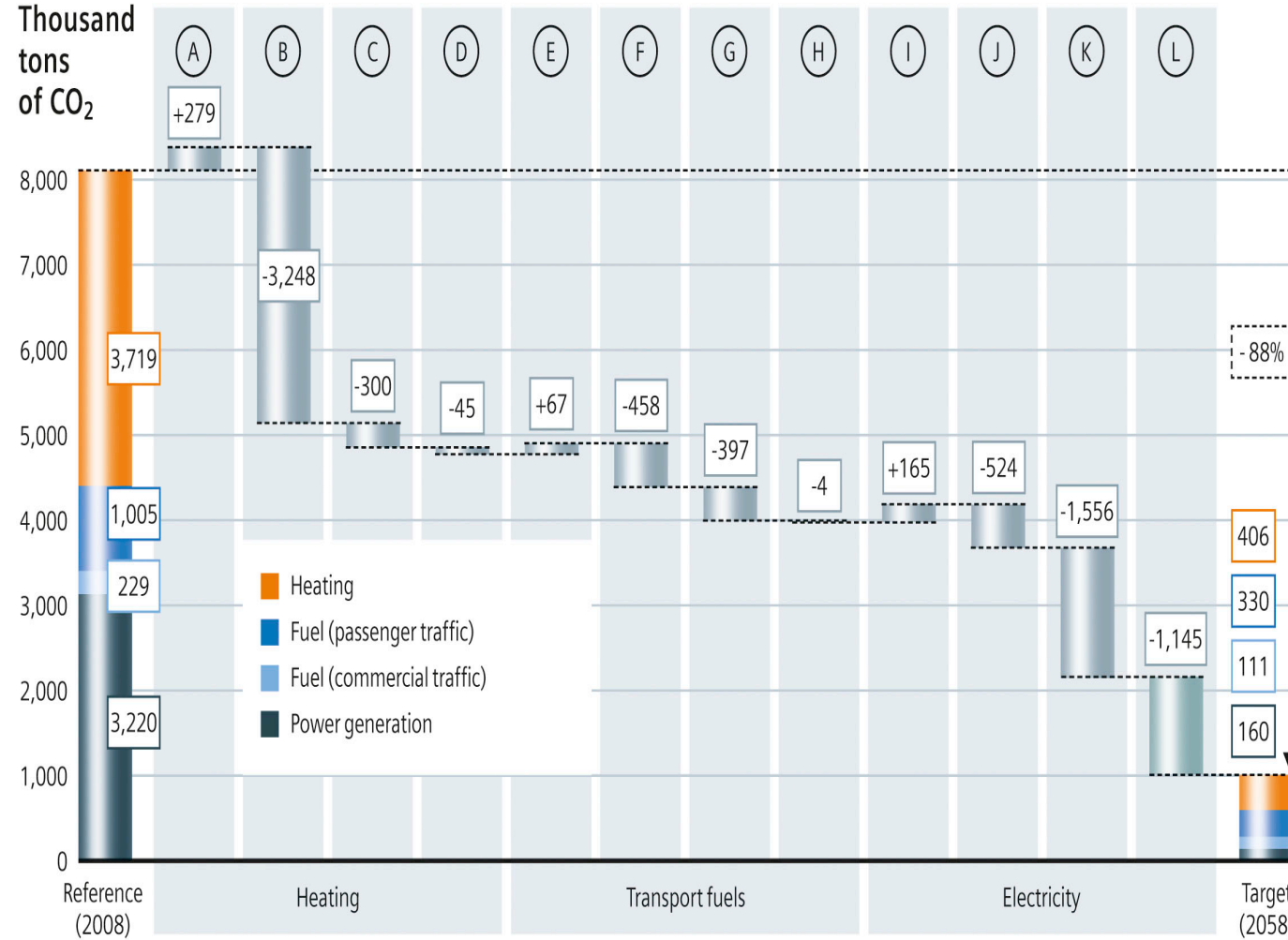
The Example of Munich 2058 (Source: Wuppertal Institute on behalf of Siemens AG 2009)

- Blueprint for the restructuring of cities
 - 50% of the worlds population live in cities consuming more than 70% of the energy
 - 50% of cities in the year 2050 are still to be built: Avoid high energy costs and lost opportunities!
 - 50% have been already built (including infrastructure): Focus an profitable refurbishment!
- The „Munich Vision“: Reducing CO₂ at least by 80% (2058)



CO₂ emissions reduction – “Target” scenario

Thousand tons of CO₂

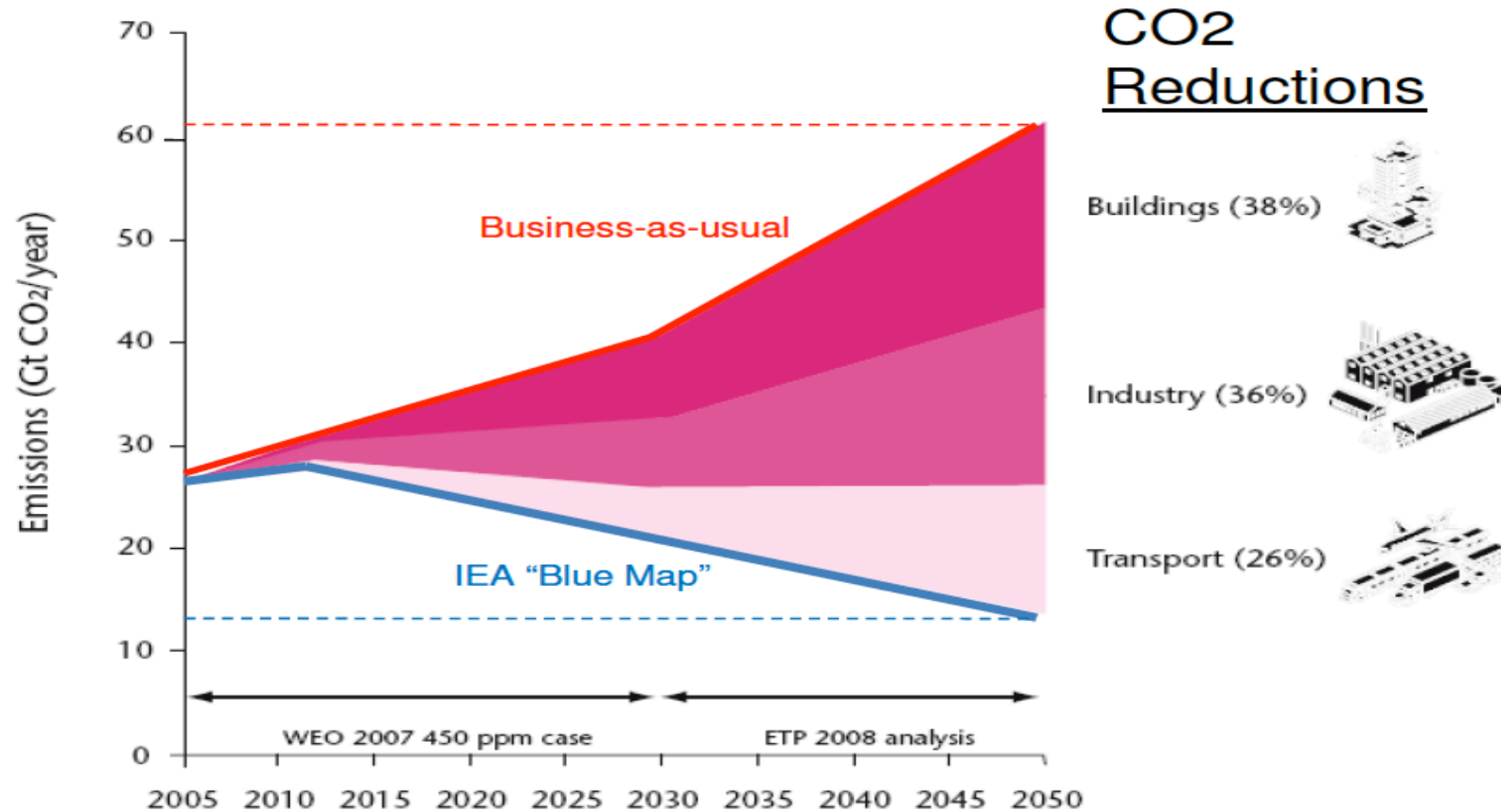


- (A) Additional heating demands due to population growth
- (B) Thermal insulation and heating efficiency
- (C) Renewable energies for heating
- (D) Efficiency in heating through use of CHP
- (E) Increased traffic due to population growth
- (F) Traffic reduction & shifting to more environm. friendly traffic patterns
- (G) Increased efficiency and electrification of vehicles
- (H) Biofuels
- (I) Additional electricity consumption as a result of population growth
- (J) Power generation from CHP (including renewable CHP)
- (K) Additional renewable electricity generation
- (L) Electricity savings through efficiency measures

Source: Wuppertal Institute, 2008

(Source: Wuppertal Institute on behalf of Siemens AG 2009)

WEO 2008: „Green Buildings“ have the greatest, but most neglected potential for cost and CO2 reduction!



<u>CO2 Levels (BAU)</u>	<u>2005 [Gt]</u>	<u>2050(e) [Gt]</u>
Buildings	8.8	20.1
Industry	8.6	23.2
Transport	6.6	18.0

Source:
WBCSD (2009): Energy Efficiency in Buildings, Transforming the Market; Sisson W. et al (2010): Building Performance Congress, Frankfurt

bigEE – bridging the knowledge gap on energy efficiency in buildings



Source: Wuppertal Institute 2010

The bigEE web portal will cover

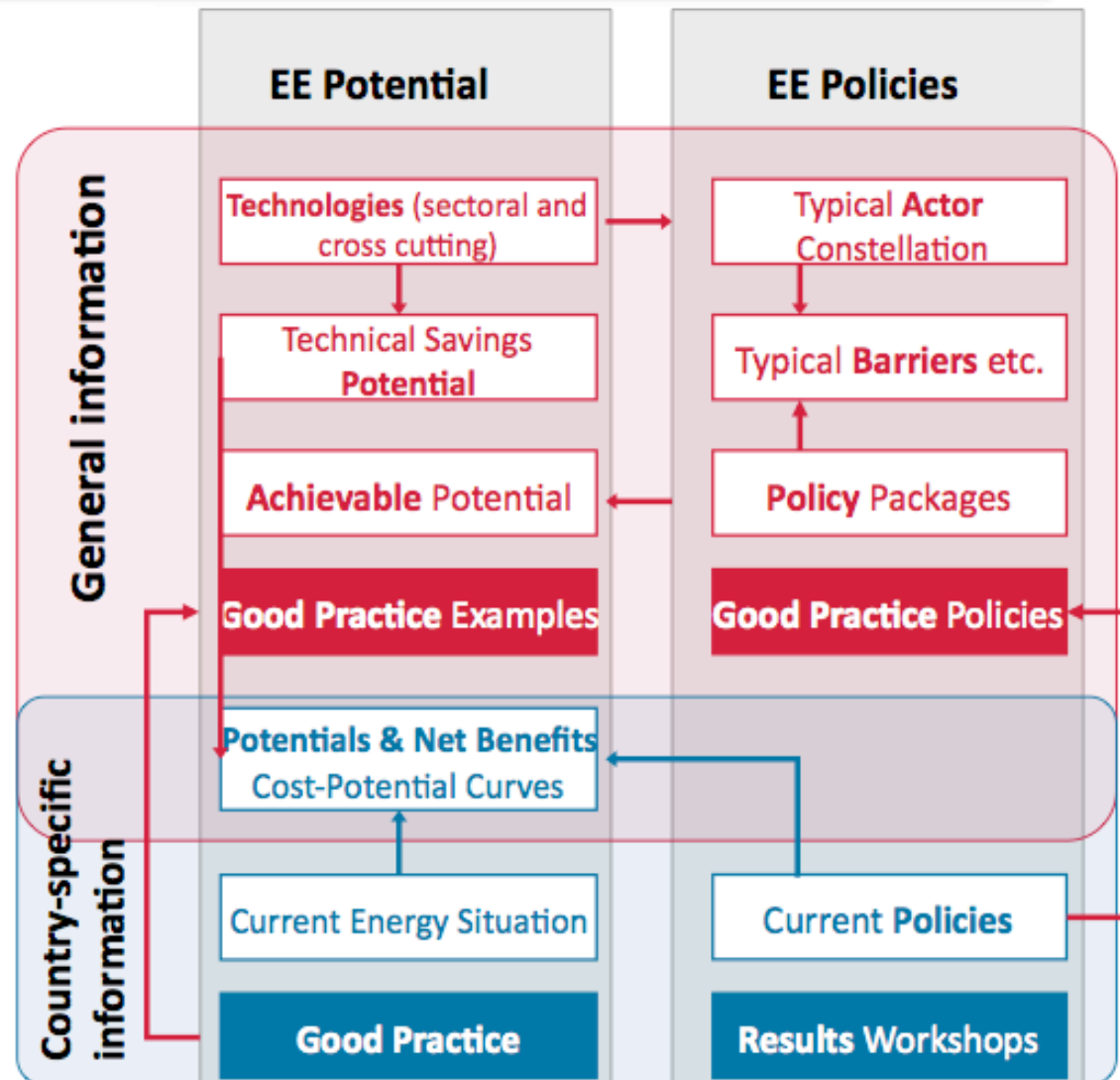
- residential buildings
- commercial / public buildings
- industry sector related building technologies
- appliances

and will include information on

- technologies
- saving options and potentials
- actor constellations
- policies and measures
- good practices

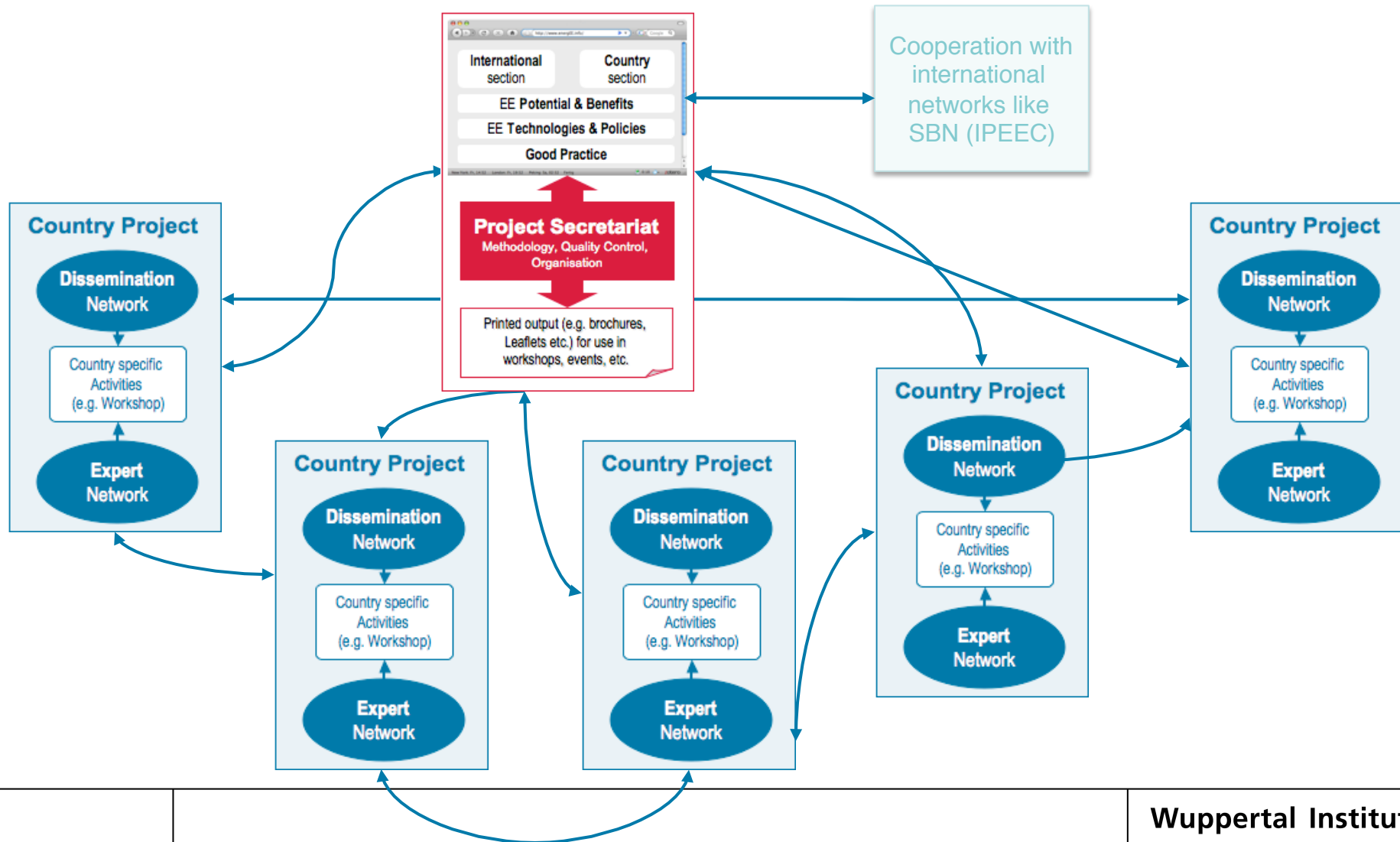
on

- international and
- national level.



International bigEE network: Starting with China and India, continued with Brasil?

(Source: Wuppertal Institut 2010)



GreenTech

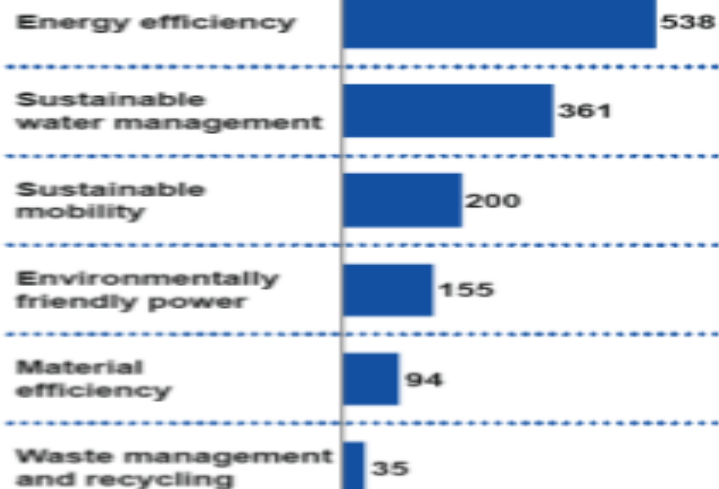
made in Germany 2.0

Environmental Technology
Atlas for Germany



Federal Ministry for
the Environment,
Nature Conservation
and Nuclear Safety

Vahlen



Global market volume for environmental technologies in 2007 [EUR bn]

Source: Market studies, interviews with experts, Roland Berger

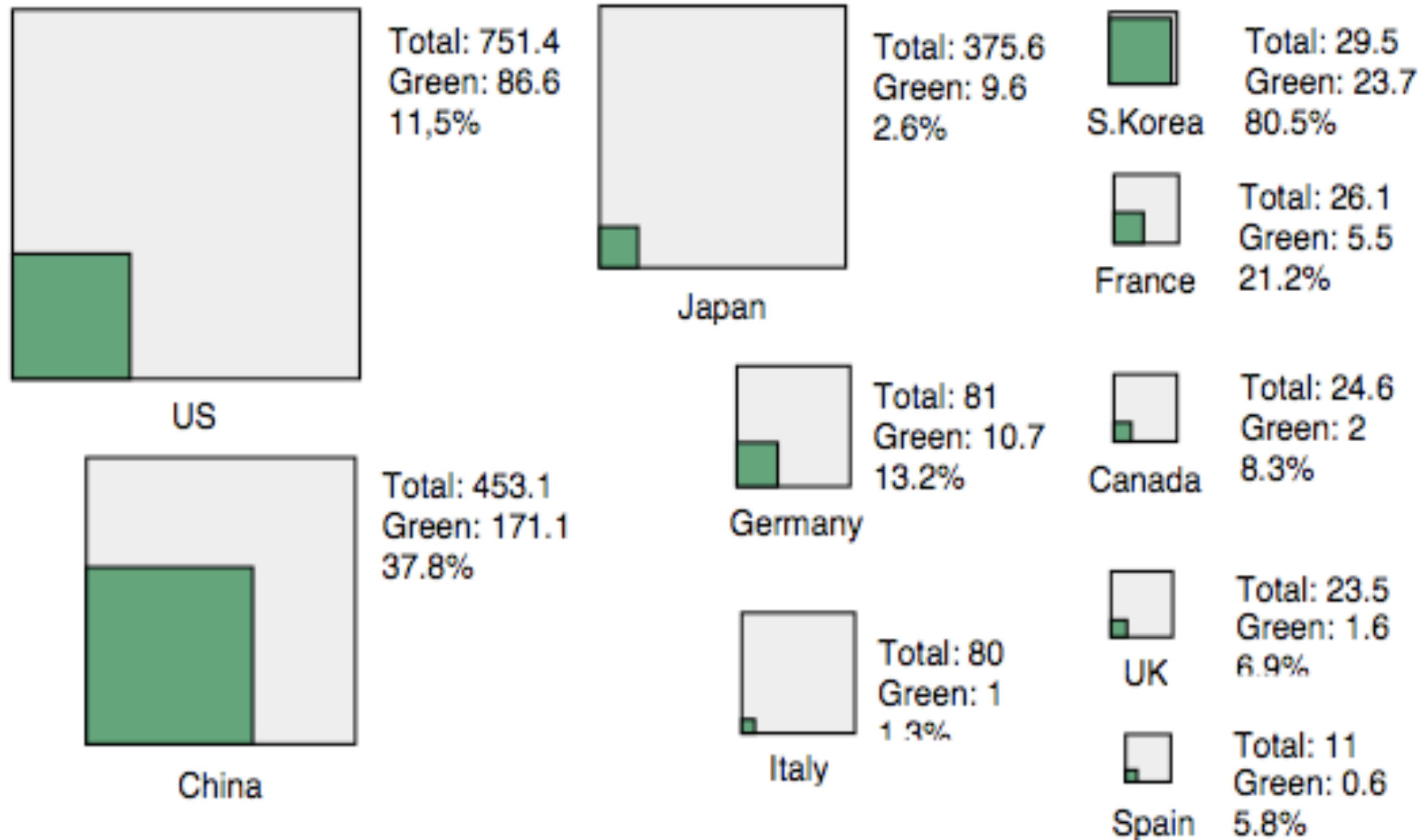


Projected development in the global market for environmental technology, 2007–2020 [EUR bn]

Source: Market studies, interviews with experts, Roland Berger

„Green Share“ of „Recovery Programmes“ 2008/2009

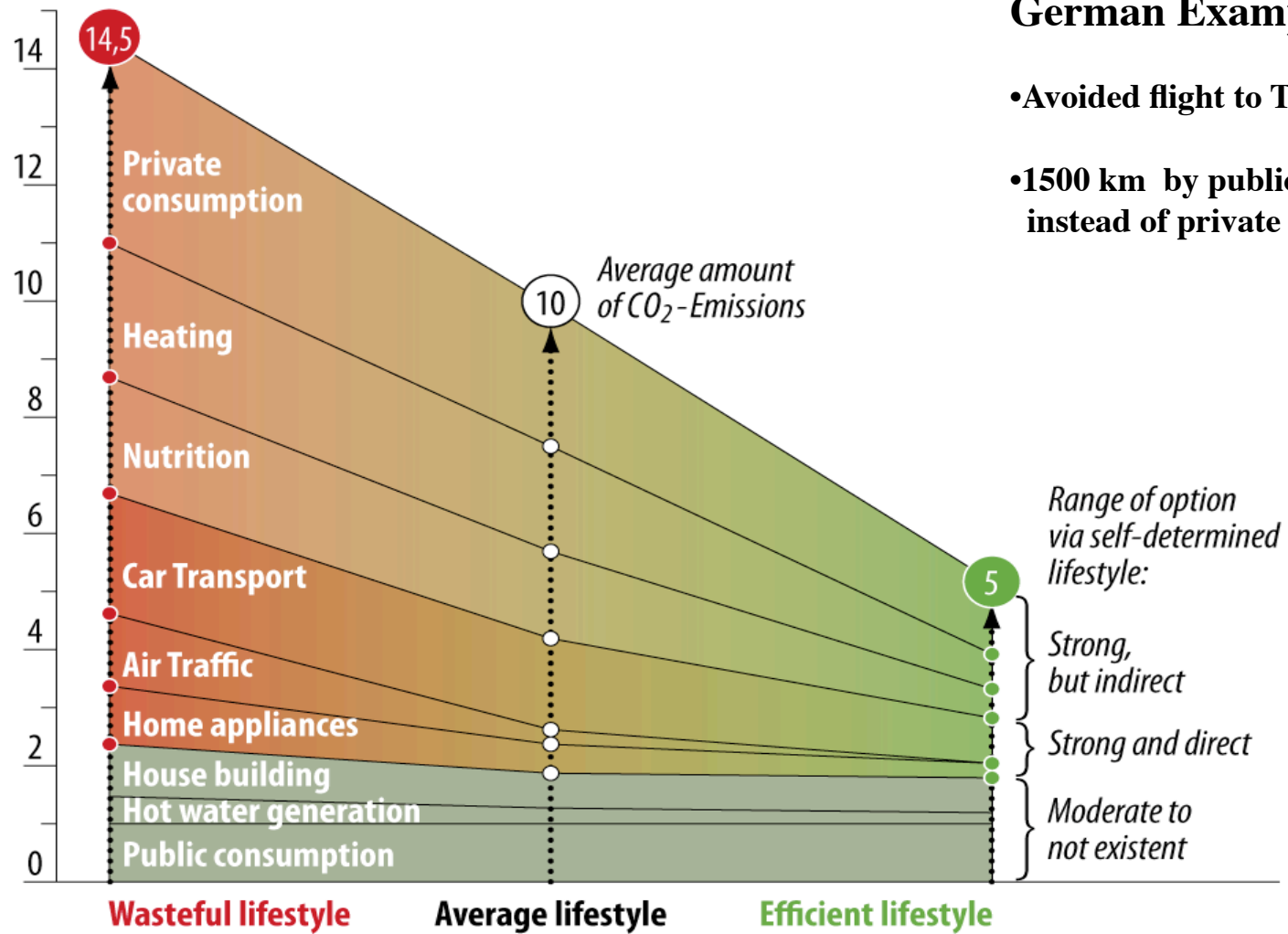
Source: Bernard et al 2009; Schepelmann et al 2009



Copying „European Lifestyles“? The scope for different consumption patterns to reduce CO₂ in EU 25

(Source: Wuppertal Institute 2007)

CO₂-Emissions in tons per person and year



German Examples:

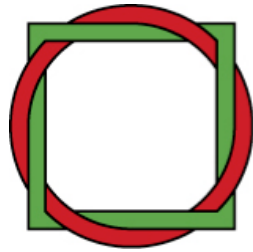
- Avoided flight to Thailand : - 5t/C02
- 1500 km by public transport instead of private car : - 1,5 t/C02

Range of option via self-determined lifestyle:

Strong, but indirect

Strong and direct

Moderate to not existent



Wuppertal Institute
for Climate, Environment
and Energy

Thank you for your attention!

Have you visited our website?
<http://www.wupperinst.org>

