WHAT IS NEEDED TO ENSURE ENERGY EFFICIENT AND HEATHY BUILDINGS – CHASING THE GAPS?

PROJECT FINDINGS

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Population in wet dwellings

Status quo

- Over 40% of the Europeans inhabit apartments
- The “energy poverty” is spread among ca. 10% of the European households
- Over 97% of the population in Bulgaria lives in privately owned dwellings
- More than 50% of the population in Bulgaria cannot afford the building services

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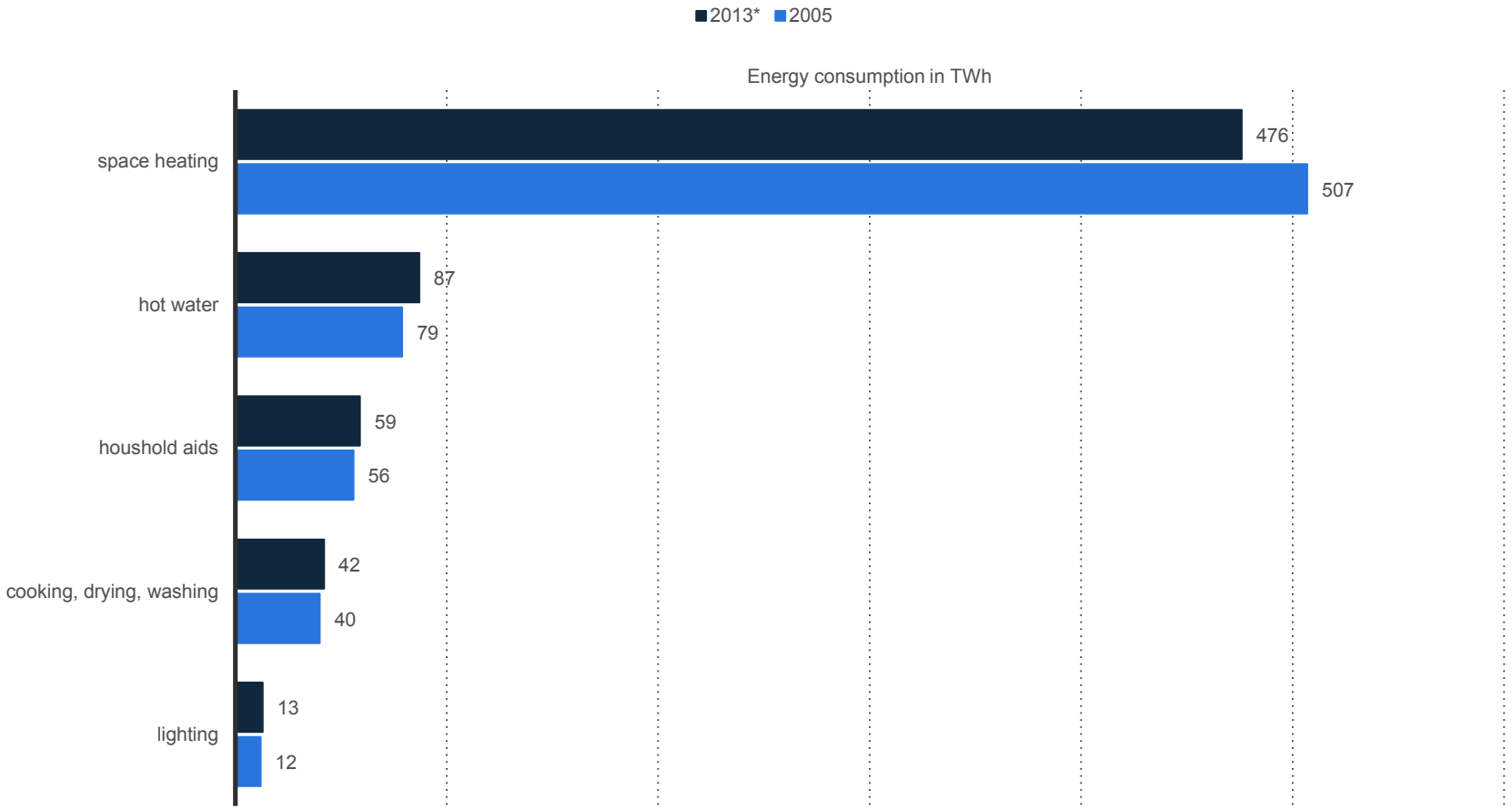
Private housholds – energy consumption depending on application area in Germany 2013

Energy consumption of private households depending on application area at annual comparison between 2005 and 2013



Population in wet dwellings

Status quo

Currently, the following problems with building exploitation are being observed in Bulgaria:

- Cases of disconnection from district heating service, the outstanding bills for consumables and the poor maintenance of the buildings;
- Poor housing stock management and maintenance;
- High energy consumption by the buildings – poor thermal insulation of the walls and physically worn out window frame insulations, which make the energy consumption increase;
- Inefficient building heating, except for the buildings furnished with central heating and gas;
- Increased share of house-owners, incapable of maintaining their property under the current market conditions.

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Population in wet dwellings

Status quo

Findings from our recently finalized EEA-funded LEAF-Project (DE, GB – Scotland and England, S, F, H)

- The main motivation for dwelling owners for starting retrofit actions is the cost efficiency, as well as the indoor climate improvement, and not the environmental issues
- Many of the privately owned dwellings EU-wide are owned by persons over 65-70 years old, for whom an energy retrofit is financially not feasible and the inconveniences related to the building works are for those people difficult to accept
- Minimum invasive retrofit measures are warmly welcome – heating exchange, window exchange etc., due to the low costs and high efficiency
- The health and indoor comfort play a significant role for the decisions of the owners and owner communities

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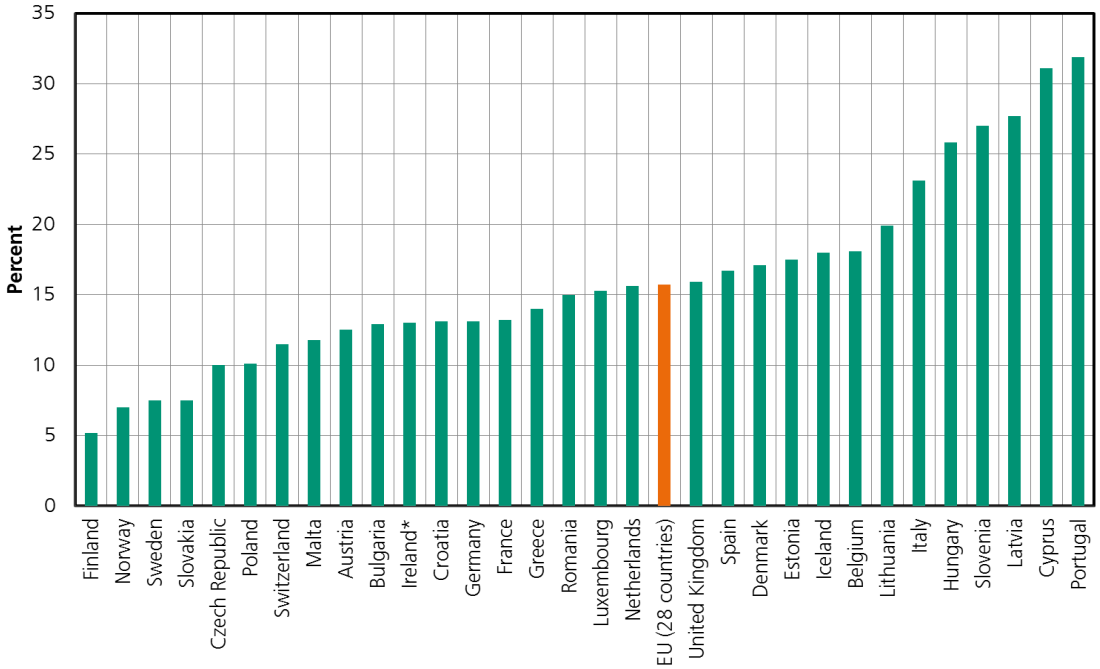

- Major factor related to health and comfort in dwellings is the occurrence of moulds – for which wet or damp dwellings are the prerequisite
- Ca. 16% of the European population lives in wet or damp dwellings

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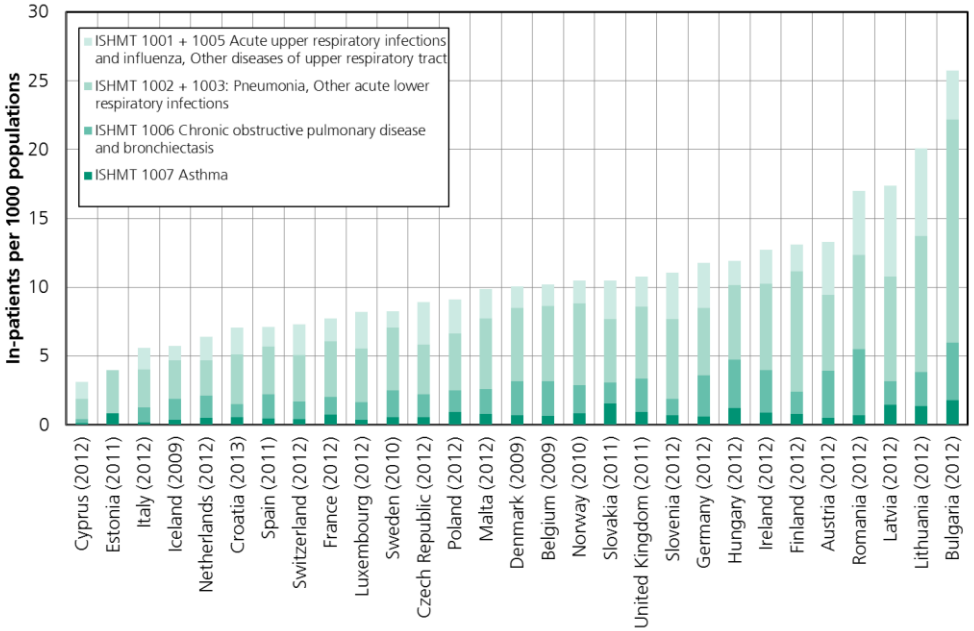

- Approximately 1.8 Million people across Europe suffer from asthma because of living in wet dwellings
- About 7 % of all hospital admissions in Europe are caused by respiratory illnesses, across European countries on average 7.6 % of those are in-patients due to asthma, 18.8 % due to chronic obstructive pulmonary disease (COPD). The largest amount of costs due to respiratory illnesses in Europe has been identified due to COPD and asthma: While the inpatient costs related to COPD and asthma in Europe could be estimated at an annual amount of 7.3 and 4.8 billion Euros (data of 2011), the overall direct costs (drug, outpatient and inpatient costs) are at 23.3 and 19.5 billion Euro

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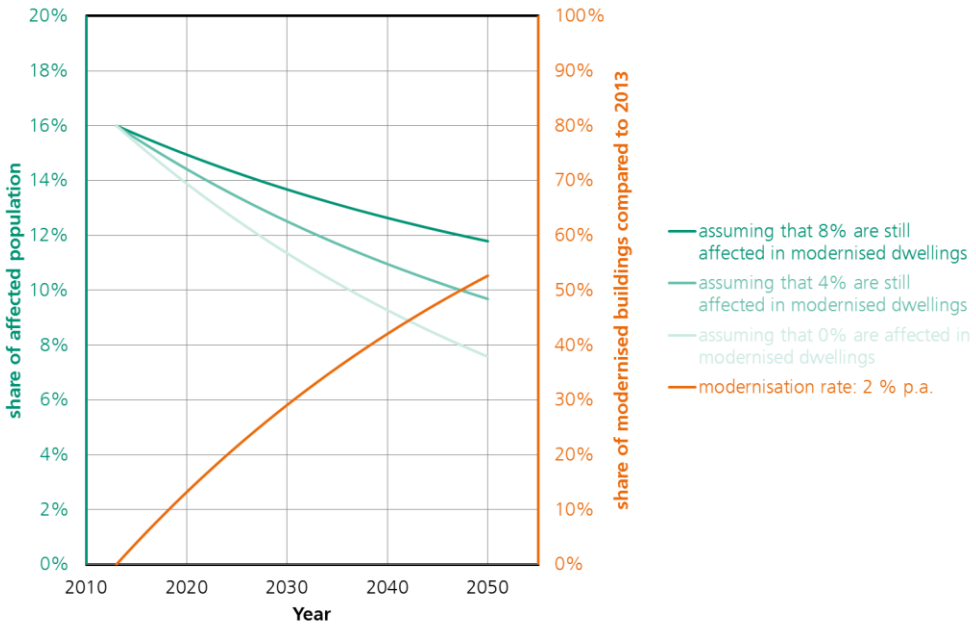

Mould related damages in buildings are frequent, e.g. in Germany nearly 10% of all building damages are mould related. In these buildings around 35% of these damages occur due to insufficient thermal insulation, 33% due to insufficient ventilation, 22% due to defective installations and 10% due to such insanitary areas.

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Population in wet dwellings

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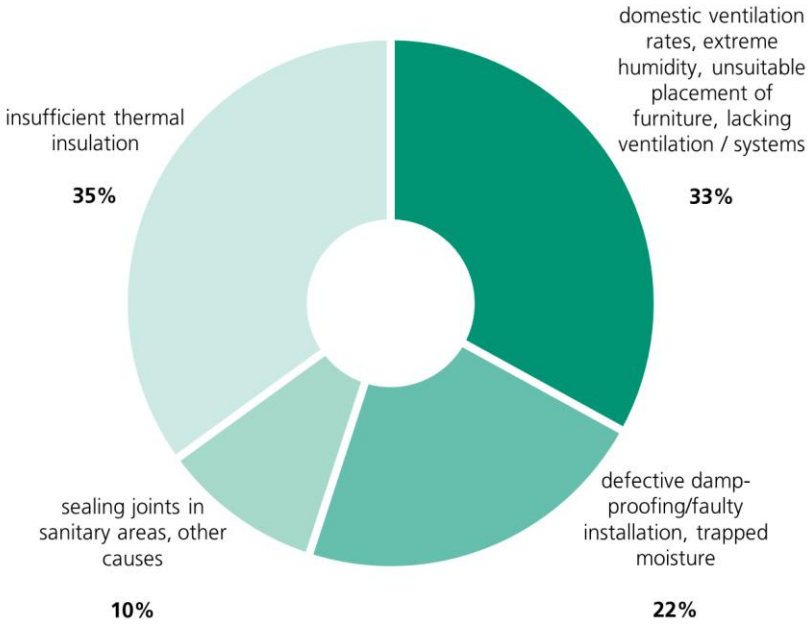

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Consequently typical areas of improvements of the building fabric with respect to mould and dampness are:

- Avoiding leakages in roofs and installation faults of windows
- Avoiding moisture penetration: horizontally due to driving rain, vertically from building components in contact with ground as well as in chimneys
- Avoiding installation faults of sanitary facilities and plumbing damages
- Avoiding improper installation of interior insulation
- Reduction of constructive and geometrical thermal bridges, especially in combination with little insulation and/or modernisation of windows
- Reduction of building moisture in new buildings
- Enabling sufficient air exchange
- Particularly ensure sufficient air exchanges after modernisation, which lead to improved air tightness
- Modernisation of insufficient heating systems

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Project goals

Goals at our current H2020 Smart City Project “Smarter Together” (Munich, Vienna, Lyon, Venice, Sofia, Santiago)

- 45.000 m² retrofitted living space in multi occupancy residential buildings in Munich, operated by owner communities
- Decarbonization
- Qualitative, not only quantitative improvement in the existing residential building stock
- Participative methods among the retrofit process
- Better and more healthy indoor environment, not monetary advantages

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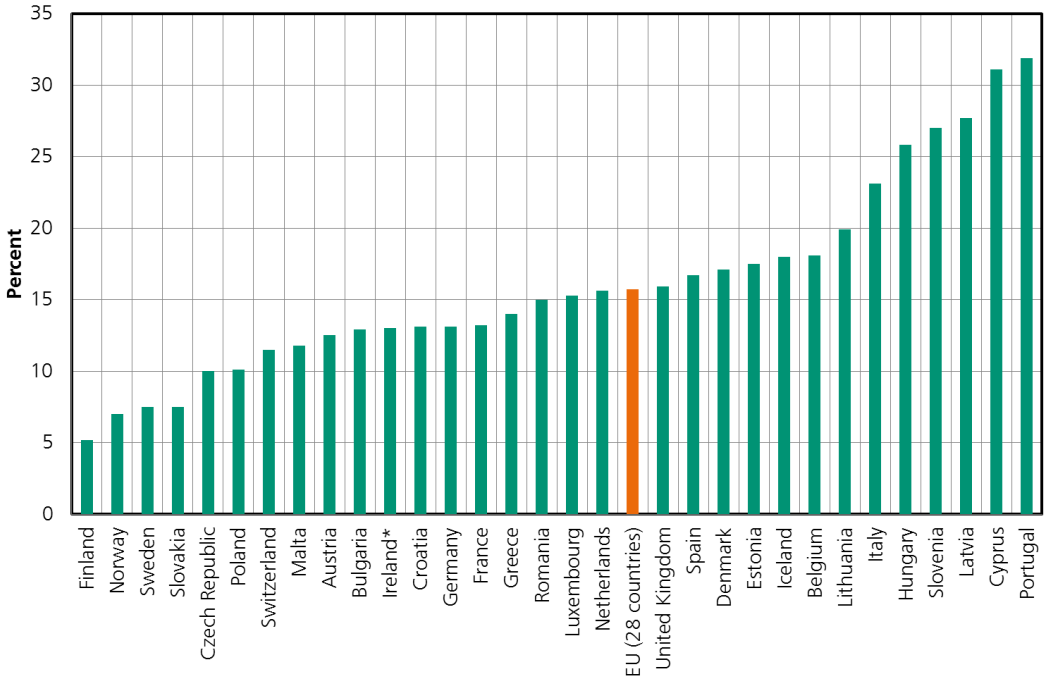

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For additional Information

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