



EXECUTIVE SUMMARY D 2.1 Consumption Trend Analysis and Sustainability Potentials

The aim of Deliverable 2.1 is to explore the extent to which SC policies may enhance sustainability in Europe in the two specific need areas “housing” and “food”. For that, first the past consumption and production trends with sustainability relevance in the EU-27 were researched and compiled. Second, the future potentials of sustainable consumption were identified and quantified on the basis of previous studies.

Both analyses cover:

- households’ consumption of energy (electricity, heat) and food (amounts of indicator products, e.g. meat, fruit, and per-capita consumption)
- production mixes for electricity and heat (including technological developments, e.g. condensing boilers) as well as food (organic/conventional shares).

The results of the historic trends for the 27 countries are presented in aggregated form using four regional clusters, based on price level similarities. These clusters include Northern Europe (North), Western Europe (West), Southern Europe (South) and Central/Eastern Europe (CEE).

The sustainability potentials in the need areas by 2030 were analysed only for the EU 27 total, but the database allows also disaggregation to the country clusters, and the individual Member State level.

The developments of population, household size and number of households are important factors for consumption. The average household size in the EU 27 is declining, from 2.6 capita per household in 1995 to a projected average of 1.9 cap/HH by 2030 (PRIMES 2009).

Approaches of the Method and Key Findings

The consumption and production trends of food and housing have been compiled by using a number of existing data sources.

The data for the EUPOPP food product groups (cereals, dairy products, fruits, meat, vegetables) was taken entirely from FAOSTAT which provides complete time series of

datasets for all EU Member States. Data from FAOSTAT has been extracted and processed into aggregates for

- total consumption by product (t/year)
- specific consumption by cluster and product (kg/capita/year).

The historic total food consumption data showed an increase for nearly all product groups, only dairy products slightly lost importance with a slow decline except in the South cluster. The future trend projection was calculated from the per capita consumption of the product groups. As the purely mathematical continuation of the historic trends is not a valid approach for the longer-term, the calculated trends were corrected to a second approximation by applying a “dampening logic” which reflects future saturation. This rough approximation gives a slight per capita consumption increase of the product groups. Exceptions are the per capita consumption of vegetables and fruits in the South cluster and the consumption of dairy in all clusters; which all are declining slightly until 2030.

The consumption of electricity and other energy carriers is the key indicator for future trends in housing. In a bottom-up analysis using a variety of EU studies, the overall saturation levels (number of appliances per household), and the respective consumption per appliance (specific electricity use) were determined. The analysis include following appliances: Electric water heaters, refrigerators, freezers, dish washers, washing machines, dryers, TV sets, set-top boxes, computers, and lighting. All saturation levels will increase in the next years until they achieve full saturation. For a few appliances (washing machines, electric water heaters and refrigerators), full saturation is already reached in the base year.

Further historic trend analysis concerned overall household consumption expenditures (in monetary terms), levels of convenience food consumption, and water consumption, and the analysis of selected production trends (electricity, heating, building stocks, agriculture).

Sustainability Potentials for Food and Housing

The sustainability potentials are expressed in potential reductions of life-cycle greenhouse-gas (GHG) emissions (in CO₂ equivalents), derived from comparing the achievable sustainable consumption patterns in 2030 with the projected trend developments.

For food, the most powerful driver is meat consumption (diets), so that a change in average EU diets from towards less meat and high-fat dairy products and more vegetables, and low-fat dairy products was assumed which could achieve 25% GHG reduction by 2030. This is equivalent to 47 mill t of CO₂ eq.

For the housing sector, a more detailed analysis was carried out. First, the GHG emission reduction potential was derived for the electricity consumption of households in comparing the trend demand and the demand which would occur if all appliances in 2030 would use best available technologies (BAT). This potential represents a GHG emission reduction of 120 mill t. of CO₂ eq.

To define the sustainability potential for buildings and heating, an estimate was derived for the future trend in new buildings, and compared with the BAT options for retrofitting, and new buildings. From that, the GHG emission reduction potential for heating represents approx. 300 mill t. of CO₂-eq.

In addition, the change of heating systems from fossil fuels to a 35% additional share of solar and biomass heat would reduce GHG emissions by approx. 270 mill t. CO₂-eq

The total sustainability potential for the EU 27 in the year 2030 in the need area of housing would give a GHG emission reduction of approx. 690 mill t. CO₂-eq.

Together with the potential from food, the combined GHG reduction potential by 2030 would be in the order of 737 mill t of CO₂-eq.