Government Actions for Resource Efficiency

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- approach towards resource efficiency in the 10YFP SBC Programme
- resource efficient policies in Finland
- reducing environmental impact of construction materials in Finland
- core Building Performance Indicators by GBC Finland
- material efficiency by Helsinki Region Environmental Services Authority HSY
10YFP Sustainable Buildings and Construction Programme

1. Promote common language and tools on sustainable building
2. Adopting a lifecycle approach and resource efficiency in building supply chains
3. Using scientific and technological knowledge to produce tools that are designed for field actors and lead to cost-effective policies
4. SBC depends on sustainable infrastructure
5. SBC should strive to be near-zero impact, or even, when relevant, resource positive
6. SBC should have a circular economy approach
7. SBC should begin at home
8. SBC requires the engaged, knowledgeable and active participation of all stakeholders
9. SBC necessitates a climate responsive approach
10. Monitoring, verifying and provide feedback is critical for success
11. There is a key role for government at all levels to lead by example
12. Demonstration of SBC approaches
Resource efficiency policies in Finland

Energy use
- New energy efficiency regulation for new building (2012) and renovation (2013) according to EPBD
- Implementation of EPBD concerning Nearly-Zero Energy Building regulation, implementation of EED
- Development of HVAC and renewable energy technology; several projects

Construction and Demolition Waste
- Implementation of Waste Framework Directive
- Promotion programme for material efficiency in building sector
- Challenge: reaching the 70% target of recycled C&D waste because of big share of wooden waste in Finland
Reducing environmental impact of construction materials in Finland

- Increasing role of construction materials in life cycle GHG emissions of buildings as we move towards nearly zero energy buildings
- Finnish Government platform 2011: promotion of LCA of construction materials and wooden building in construction
- Target: inclusion of environmental impact (embedded energy and GHG emissions) of construction materials in building legislation 2020s (energy efficiency regulation?) → roadmap

**Challenges**

- harmonization of assessment methods
- role of other environmental impacts (acidification, eutrophication, scarcity of natural resources)
- role of carbon sequestration in climate impacts assessment

**EU Activities**

- communication on Resource efficiency of construction sector: core indicators
- standardisation of environmental qualities of construction products
Core Building Performance Indicators in design phase

- **ECONOMY**
  - Lifecycle Cost € (EN 15643-4)

- **ENERGY**
  - Imported energy
  - Imported primary energy
  - Baseload power

- **GLOBAL WARMING**
  - Life-cycle carbon footprint kg CO₂e (EN 15978)
  - Operating carbon footprint kg CO₂e (GHG Protocol)

- **OCCUPANTS**
  - Indoor air quality classification (S1-3)
  - Share of satisfied occupants %

E-value kWh/m², a
Core Building Performance Indicators in use phase

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Calculation of Material Balance 2012

IN: (t/a)
- Raw water: 96,000,000
- Wastewater: 150,000,000
- Chemicals: 30,000
- Compost additives and stabilising materials: 105,400
- Network materials: 12,600
- Waste and soil: 616,950

TOTAL IN: 246,765,000

Carbon emissions (t CO\textsubscript{2} equiv.)
- IN: 201,700

OUT: (t/a)
- Domestic water: 93,000,000
- Treated wastewater: 130,000,000
- Waste and soil: 94,900
- Compost: 130,000
- Water vapour: 43,000
- Biogas sold: 732,000

TOTAL OUT: 224,100,000

STORED: (t/a)
- Waste: 380,000
- Materials: 11,000
- Biogas: 17,063,000
  - TOTAL: 17,454,000

Water emissions (t/a)
- Nitrogen: 1,234
- Phosphorus: 38