Environmental health situation in Hungary - major challenges related to global megatrends

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SOER 2015 — The European environment — state and outlook 2015
A comprehensive assessment of the European environment's state, trends and prospects, in a global context.

1910.
Rate of population >65 y 5%

2012.
Rate of population >65 y 17%

2048.
Rate of population >65 y 30%

Life expectancy at birth 74.4 y – continuously increasing

Forrás: KSH
2. Towards a more urban world – Relationship of urban environment and health

Source: EEA-FRESH Report 2013
3. Changing disease burden

Percent of DALYs attributable to Global Burden of Disease risk factors, Hungary, 2013

- Behavioral & Metabolic: 38%
- Environmental & Metabolic: 21%
- Behavioral: 29%
- Environmental: 4%
- Metabolic: 4%

Data source: healthdata.org
Years Lived with Disability per 100,000 due to environmental risk factors, Hungary, both sexes, 50-69 years, 2013

Data source: healthdata.org
5. Continued economic growth

Change of GDP in Hungary 2003-2015. 1st quarter of year

Spatial distribution of deprivation in Hungary

8. Increasing environmental pollution- Air quality- PM10

Source: Air pollution fact sheet, Hungary 2014. EEA
8.8. Increasing environmental pollution - Air quality - $O_3$

Source: Air pollution fact sheet, Hungary 2014. EEA
Extrapolating for the population of Hungary, assuming similar PM2.5 exposure, the attributable excess mortality due to the > 10 µg/m³ PM2.5 concentration would be ~8000 cases based on the air quality in 2005, respectively ~4800 cases based on the air quality in 2010 (using APHEKOM methodology for HIA).
The FRESH project

- The project on Foresighted Reasoning on Environmental Stressors and Health (FRESH) ran from 2013 to 2014 and investigated the frameworks and evidence base for undertaking integrated assessments of environmental health and well-being.

- Tracking multifaceted impacts on health and well-being demands a diverse set of indicators. In developing an indicator base for environment, health and well-being, it is also important to include indicators that combine health, environment and socio-economic dimensions.

- In the next figure, we take the example of climate change to demonstrate how conceptual mapping can help us to understand the complex relationships between ecosystems, natural, built and social environments, and human health. By identifying the pressures that impact on the state of the environment and determining human exposures and experiences, via both distal and proximal pathways, we can then start to build a portfolio of relevant policy actions.

http://www.eea.europa.eu/articles/a-europe-to-thrive-in
CLIMATE CHANGE

Industrial processes which burn fossil fuels
Short-termism and non-global perspectives
Growing global population
Consumerism and consumption

PROXIMAL PATHWAY

PRESSURE
Increased carbon and GHG emissions form:
- Transport
- Agriculture
- Industry

STATE
- Flooding
- Extreme weather events
- More frequent heat-waves
- Reduction/deterioration of green & blue spaces

EXPOSURE/EXPERIENCE
- Contaminated water (chemical & bacterial)
- Fast flowing water
- Debris hazards
- Damps and moulds in homes
- Inadequate thermal insulation
- Insecurity
- Damaged social relations
- Reduced individual choice

HEALTH & WELL-BEING
- Drowning
- Physical trauma and gastrointestinal illness
- Toxic and allergic illness
- Mental health-stress, anxiety and depression
- Mortality and hospital admissions from heat and vector-borne diseases
- Reduced well-being

DISTAL PATHWAY

PRESSURE
Emission of GHGs and particulates
Formation of ozone

STATE
Damaged planetary ecosystems resulting in climate-related damage to Supporting, Provisioning, Regulatory and Cultural “ecosystem services” for certain populations

EXPOSURE/EXPERIENCE
Local population experience reduced material benefits, damaged social relations, and security

n.b. Global economic social and ecosystem connectivity means the distal pathway can impact on the proximal pathway in health relevant ways and vice versa.

n.b. Policies and actions to improve health and well-being may be targeted to different stages on the pathways and/or to the context.

EXAMPLES
- Emergency planning/heat-wave plans
- Policies addressing vehicle numbers and emissions (technological & fiscal)
- Investment in cycle/walking infrastructure and green space provision and maintenance
- Improved urban & traffic planning, traffic-control measures, smog-alert measures, subsidies for zero-emission vehicles
- Increase energy efficiency of buildings
- Vector-control measures
- TeleHealth, emergency alert systems
Climate change, health and well-being in Hungary

A demonstration of the implementation of FRESH indicators to assess the situation
Use of energy by households: slightly decreases in EU between 2000-2012, due to energy saving instalments and buildings.
Climate change contributes to the increase of energy consumption – this is the only factor increasing after the economic crisis of 2008.

Energy efficiency:
At the level of consumers it increased by 15% (by 20% in the households).
In Hungary the rate of increase is higher (>2.7%/year) than the EU average.
State of the environment

It is very important to ensure optimal indoor air temperature in hospitals and social care institutions. Acc. to a survey in 2015 carried out in the leading county hospitals in Hungary, there is AC in most of the operating rooms, in 50% of staff rooms, in 80-90% of intensive and coronary care units and in 30% of other types of rooms.

~10% of the rooms of social care units have AC (2011)

25% of private homes have AC (2015)
Mean temperature during the summer period, 2005-2014

Exposure


Source: Hungarian Meteorological Service (OMSZ)

http://www.met.hu/KRITeR/hu/publikacio/
Excess mortality during heatwaves over the cut off TEMP (p90% 25°C) in the total population and over 65 year in Budapest, 2000-2010

The incidence of melanoma is indirectly associated with climate change with increases in UV radiation. In Hungary, we can observe an increasing tendency in the last decade.

The heat related excess mortality can be proved in each year, it is between 5-30%
Daily all cause mortality and daily mean temperature, Hungary, 2015

### Relative excess mortality during the 5 heatwaves, Hungary, 2015 summer

<table>
<thead>
<tr>
<th>Heat alerts 2015</th>
<th>level</th>
<th>Relative excess mortality (%)</th>
<th>Excess mortality cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>06.11-06.15</td>
<td>II.</td>
<td>5,9</td>
<td>91</td>
</tr>
<tr>
<td>07.04.-0.08.</td>
<td>III.</td>
<td>25,2</td>
<td>387</td>
</tr>
<tr>
<td>07.17.-07.26.</td>
<td>III.</td>
<td>22,4</td>
<td>550</td>
</tr>
<tr>
<td>08.07.-08.16.</td>
<td>III.</td>
<td>17,9</td>
<td>716</td>
</tr>
<tr>
<td>08.29.-09.01.</td>
<td>II.</td>
<td>9,2</td>
<td>141</td>
</tr>
<tr>
<td>Mean/total</td>
<td></td>
<td>17,0</td>
<td><strong>1884</strong></td>
</tr>
</tbody>
</table>

Páldy A, Bobvos J: Halálozási anomáliák hazánkban 2015 első nyolc hónapjában - a „közel valós idejű” halálozási rendszer használata alapján
Measures to improve the environmental health situation in Hungary

Adaptation and implementation of national strategies and policies:

• 2\textsuperscript{nd} National Climate Strategy – needs a Parliament Resolution
• National Energy Strategy 2030
• 4\textsuperscript{th} National Environmental Program 2014-2019
• Governmental Decree on the Intersectoral Action Program on reducing PM10 concentration
Thank you for your attention