The way forward: more trees and urban forests?

As the European population ages and becomes more urbanised, the 'public health' service benefits from forests is likely to go up. In practical terms, this will mean that many cities need to extend their forests and green spaces and make them safer and more accessible. Consequently, afforestation, planting trees and greening the urban environment should be placed at the heart of local and regional spatial planning.

Management of forests in and around urban centres will need to be well designed taking both environmental considerations, such as climate change, and human considerations, such as an ageing population into account.

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Adapting to climate change — SOER 2010 thematic assessment:
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INTERNATIONAL YEAR OF FORESTS · 2011

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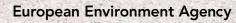
FORESTS, HEALTH AND CLIMATE CHANGE

URBAN GREEN SPACES, FORESTS FOR COOLER CITIES AND HEALTHIER PEOPLE

Forests are essential to our survival and well-being. Forests clean our air, our water, our soil and they regulate our climate, amongst many other things. Trees and forests are not always associated with urban landscapes. However, there too they provide invaluable, often invisible, services. Simply by acting as 'green oasis' in our concrete jungles, they offer recreation and health services for many European citizens.

How many of us love strolling through parks and green spaces in cities, tending our gardens and filling our homes with green plants? Access to green environments makes us happier and our bodies healthier. Scientific studies show that urban forests and green spaces help improve physical health and mental well-being. With more than three quarters of Europeans living in urban areas, trees, forests and green spaces mean more than ever before.

World Health Organization

European Environment Agency

Climate change increases health risks

Climate change projections foresee an increase of 2 to 5 °C by 2100 in mean annual temperatures in Europe. The greatest warming is expected in eastern and northern Europe in winter and in southern Europe in summer. Heat waves pose particular risks for the elderly and people suffering from respiratory and cardio vascular diseases. During the severe heat wave of 2003, over 70 000 excess deaths were reported in 12 European countries. Air quality often deteriorates during heat waves and thus aggravates health problems.

The elderly are particularly vulnerable to the health impacts of climate change. In Europe, the proportion of the population aged 65 years and above has increased from 10 % in 1960 to 16 % in 2010, and is projected to increase to 30 % by 2060. At the same time, the number of
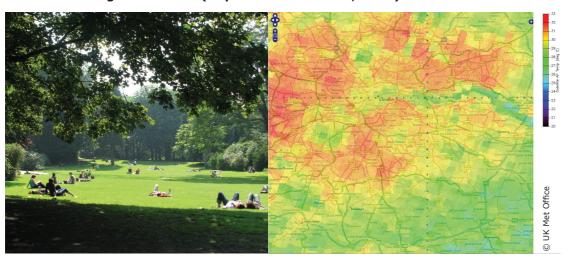
Europeans living in urban areas is also increasing. Today nearly 75 % of the European population live in urban areas and this is expected to reach 80 % in 2020. In this increasingly ageing and urbanising society, forests and green spaces in urban areas can help protect people from the health-related impacts of climate change.

Urban forests cool urban heat islands

Trees and shrubs cool surrounding areas by several mechanisms. Their leaves reflect light and heat back upwards and provide shade, while transpiration releases water into the air which results in lower temperatures around them. These natural processes can thus partly reduce the negative impacts of heat waves in urban areas.

Modelling studies for urban temperatures over the next 70 years project that in urban areas where the green cover is reduced by 10 %, urban temperatures could increase by 8.2 °C above current levels. On the other hand, increasing the urban green cover by 10 % could restrict the temperature increase to only 1 °C (Gill, 2007).

A satellite map of London taken during the 2006 heat wave shows clearly lower temperatures in green areas near Heathrow Airport, Richmond Park, Hampstead Heath and along the Thames (Department of Health, 2011)

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Forests improve air quality

Forests and green spaces help improve air quality in urban and rural areas. They extract a wide range of air pollutants from the air such as particles and carbon oxides, emitted, for example, by traffic and industry. Trees also help tackle climate change — over one year a mature tree will take up about 22 kilograms of carbon dioxide from the atmosphere, and in exchange release oxygen. Each year, 1.3 million trees are estimated to remove more than 2500 tonnes of pollutants from the air (McPherson, 2005).

Forest and green space contribute to flood management

Trees and urban green spaces facilitates the infiltration of rain water into the ground. Planting trees and developing green spaces are essential steps towards strengthening Europe's green infrastructure and contributing to flood management.

The wider health benefits of urban forests

Giving urban residents the opportunity and the possibility to enjoy greater access to safe green spaces and to reconnect with nature also has multiple benefits for mental and physical health. For example, a study across the whole population of England showed that those who lived closer to greener environments had 25 % lower all-cause death rates, even after adjustments were made for the wider health impacts of poverty (Mitchell and Popham, 2008).

Another study concluded that every 10% increase in green space is associated with a reduction in diseases equivalent to an increase of five years of life expectancy (De Vries, 2001). Easily accessible

and safe urban forests and green spaces have also been found to have the following health benefits, many of which are especially important for older people (Nurse et al., 2010):

- Increased physical activity and reduced obesity
- Reduced stress levels and improvements in mental health
- Reductions in noise levels — which can improve mental and physical health
- Improvements in hospital recovery times
- Lower levels of violence and crime and increased social interactions which can also help improve overall well-being.