

Green roofs and façades

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Preface

Cities occupy 2% of the earth's land area but devour 75% of the resources that are consumed by humanity each year. The quality of design and modes of living in cities are therefore key factors in terms of global conservation. The Greater London Authority has estimated that London has an ecological footprint twice the size of the United Kingdom. Clearly this pattern of consumption is unsustainable. The problem is now magnified by the realisation that city living produces greenhouse gases which are changing the global climate at an unprecedented rate. This could lead to catastrophic instability.

It is against this background that I have come to believe that the built environment must be altered to mimic the natural environment as a way of restoring ecosystems, reducing greenhouse gas emissions, and adapting to climate change. As people have known for millennia, buildings can support soil and vegetation. By incorporating vegetation into the design of buildings (including both roofs and walls) and other structures from the outset, the built environment can provide the so-called ecosystem services normally provided by the natural environment, including flood alleviation, food production, cooling and insulation. Roofs can even benefit the conservation of biodiversity. Building-integrated vegetation, the subject of this book, is not an optional extra, gimmick or passing fancy but one element of a whole suite of measures which should be used to restore ecosystems and help us move towards life within natural limits.

GG, October 2006

Chapter 1

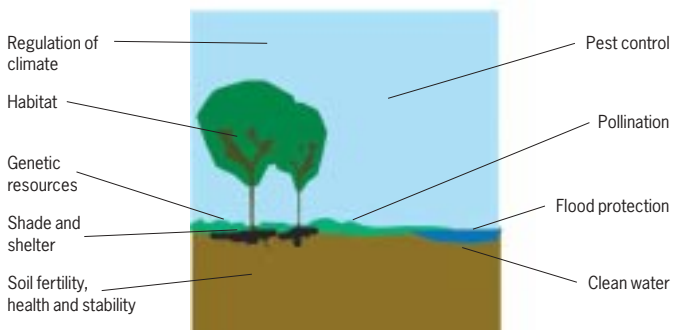
Introduction

A man is now more likely to be the man in the street than a man on the farm. Approximately 50% of the world's population now lives in towns and cities, and this is expected to grow to 55% by 2015^[1].

In China, it is estimated that every year 8.5 million people permanently leave the countryside to live and work in the booming cities on the eastern and southern coasts. Our current over-reliance in our towns and cities on artificial, bolt-on, climate-changing technologies can only be a temporary solution. An example of the contrast between the ecosystem service and conventional approaches would be cooling using vegetation compared with energy hungry mechanical air-conditioners; the need to find new approaches is becoming an increasingly urgent problem because cities continue to grow in number and size, and urban lifestyles are already unsustainable.

In 2006 the think tank that put international debt onto the agendas of the G7 and G8 summits, the New Economics Foundation^[2], estimated

that, if the whole population of the world were to live like people in the United Kingdom, the resources of 3.1 planets would be needed. A typical modern city has an ecological footprint (ie the area needed to maintain the population in terms of food, resources and waste disposal) of between 100 and 300 times the area of the city itself. The Greater London Authority has estimated that London has an ecological footprint twice the size of the United Kingdom^[3].



The natural environment provides so-called 'ecosystem services'. By mimicking the natural habitats these services can be provided in the urban environment

