

Policy implications: Natura 2000 and wider green infrastructure

Marianne Kettunen

Principal Policy Analyst, Biodiversity and Green Economy Programmes, IEEP
Workshop 'Health and Social Benefits of Biodiversity and Nature Protection'
28 January 2016, Brussels



#naturehealth
#naturefit4all



A project funded by the European Commission
(ENV.B.3/ETU/2014/0039) and workshop hosted by
the Committee of the Regions

Protected areas / Natura 2000

What do we know?



- PA or Natura 2000 status not strictly needed to create H&S benefits - but it helps!
- “Trustworthy” and desirable destinations
- Existing infrastructure
- Existing governance frameworks
- Existing links / processes with stakeholders, e.g. volunteers
- Existing information and knowledge base
- Access to funding



GI initiatives and strategies

What do we know?



- GI initiatives and strategies can facilitate delivery of H&S benefits in several ways.
- Knowledge generation
- Strategic planning
- Zoning of benefits – *which areas, which benefits?*
- Integrating protected areas / conservation objectives into wider context
- Access to financing



What do we need to remember?

Delivering benefits to biodiversity



- Protected areas / Natura 2000 are underpinned with conservation objectives → need to respect those objectives
- Improving the “biodiversity value” of GI
- Existing examples show lots of possible ways to increase synergy, several success stories seem replicable!



What do we need?

Creating synergies, developing innovations!



- Ensure #naturehealth initiatives also deliver for biodiversity
- Make the most of (urban) GI to support biodiversity conservation
- Link PAs with broader GI, also in peoples minds and perceptions.
Bring biodiversity to people!
- Develop new, innovative governance mechanisms that ‘marry’ PAs with GI. *Make the link - from urban green to the big wide open / wilderness!*



Innovations such as ...

London National Park City

Let's make London the world's first National Park City. A city where people and nature are better connected. A city that is rich with wildlife and every child benefits from exploring, playing and learning outdoors. A city where we all enjoy high-quality green spaces, the air is clean to breathe, it's a pleasure to swim in its rivers and green homes are affordable. Together we can make London a greener, healthier and fairer place to live. Together we can make London a National Park City.

Why not?

<http://www.nationalparkcity.london/>

Daniel Raven-Ellison / hello@nationalparkcity.org



Greater London
National Park*

*Officially a National Park

Session questions



- How can Natura 2000 network best support & promote H&S benefits, together with conservation goals?
- What type of GI best supports and promotes H&S benefits?
- How do we facilitate / ensure synergies between nature conservation and H&S benefits?
- What kind of innovations are possible / needed?



Session speakers



- *National network of protected areas as tool for delivering H&S benefits in Finland, **Matti Tapaninen**, Parks Wildlife Finland*
- *Protected areas as tools for delivering H&S benefits across borders, **Irena Muskare**, Green Routes without Obstacles - project, Nature Conservation Agency, Latvia*
- *Green infrastructure and cities – delivering H&S benefits in urban context, **Vera Enzi**, European Federation of Green Roof and Wall Associations*
- *Developing an EU-wide framework for GI, **Teresa Fenn**, TEN-GI initiative / Risk and Policy Analyst RPA*



Marianne Kettunen

Principal Policy Analyst / IEEP

mkettunen@ieep.eu



#naturehealth

#naturefit4all



Institute for
European
Environmental
Policy



Collingwood
Environmental
Planning

I.C.L.E.I
Local
Governments
for Sustainability

Luke
nature projects
instituut

milieu



A project funded by the European Commission
(ENV.B.3/ETU/2014/0039) and workshop hosted by
the Committee of the Regions

Healthy Parks Healthy People Finland

Matti Tapaninen
Parks & Wildlife Finland



#naturehealth
#naturefit4all



A project funded by the European Commission (ENV.B.3/ETU/2014/0039) and workshop hosted by the Committee of the Regions

Parks & Wildlife Finland

Manages all state-owned protected areas and 18% of Finland's surface area

- 39 national parks
- 19 strict nature reserves
- 6 national hiking areas
- 12 wilderness areas
- over 500 other nature reserves
- Finland's state-owned waters

→ Most of the established protected areas belong to Natura 2000 network



Healthy Parks Healthy People Finland

Public health improves as people get out into natural settings, enjoy positive and authentic experiences, and improve their health through a wide range of outdoor activities.



Cooperation and partnership

P&W Finland and service providers in the wellbeing and health sector collaborate on the design, production and marketing of products

P&W Finland is a reliable and desirable partner for the health service and organisations promoting health at the local, national and international level



Institute for
European
Environmental
Policy



I.C.L.E.I
Local
Governments
for Sustainability



A project funded by the European Commission
(ENV.B.3/ETU/2014/0039) and workshop hosted by
the Committee of the Regions

Accessibility

Protected areas form an integral part of the networks of green spaces and protected areas of various kinds offering opportunities for outdoor recreation near urban communities

Protected areas are easily accessible, and barriers to outdoor recreation are low, encouraging people to enjoy outdoor activities all year round



Institute for
European
Environmental
Policy



Collingwood
Environmental
Planning



I.C.L.E.I.
Local
Governments
for Sustainability



Luke
LOCAL PROJECTS
INSTITUTE



milieu



WWF



A project funded by the European Commission
(ENV.B.3/ETU/2014/0039) and workshop hosted by
the Committee of the Regions

Health benefits for people of all ages

Special focus on (re)connecting children and nature



Research and monitoring

More research data becomes available on the health benefits of protected areas

The health benefits of the use of protected areas are monitored and measured, with findings used to develop and enhance services



Perceived health and well-being benefits



Development of the survey instruments in 2012

Modified on-site visitor surveys in four protected areas (n=2052) with a small set of health and well-being questions in summer 2013.

Extensive WEB based questionnaire for those visitors who were willing to participate in the health & well-being survey and who gave their e-mail address.

The health & well-being questionnaire link was sent to 1197 respondents appr. 1-3 weeks after the on-site survey.



Hannu Kaikkonen, Veikko Virkkunen, Liisa Kajala, Joel Erkkonen, Martti Aarnio and Raija Korpelainen

Health and Well-being from Finnish National Parks – A Study of Benefits Perceived by Visitors

Executive summary



Metsähallituksen luonnonnsuojelujulkaisu. Sarja A 208

www.julkaisut.metsa.fi



Institute for
European
Environmental
Policy



Collingwood
Environmental
Planning

I.C.L.E.I
Local
Governments
for Sustainability

Luke
Metsä tutkimuskeskus
Metsä tutkimuskeskus

milieu



COMMITTEE OF THE REGIONS
Committee of the Regions



A project funded by the European Commission
(ENV.B.3/ETU/2014/0039) and workshop hosted by
the Committee of the Regions

Perceived health and well-being benefits - On-site visitor survey questionnaire (Kevo)

16. How did this visit to Kevo Strict Nature Reserve influence the state of your health and well-being in the following sectors?

(Answer, please, each point and choose the alternative, which describes your feeling the best.)

5 = totally agree, 4 = somewhat agree, 3 = no opinion, 2 = somewhat disagree, 1 = totally disagree)

	totally agree	5	4	3	2	1	totally disagree
Increased social well-being (f. ex. strengthened social relations, improved working capacity, enjoyed doing things alone or together)	<input type="radio"/>						
Increased psychological well-being (f. ex. satisfaction with life, improved mood, recovery from mental stress, learned something new)	<input type="radio"/>						
Increased physical well-being (f. ex. enjoyed sensing the nature, maintained the fitness, learned new skills, physical well-being)	<input type="radio"/>						

Perceived health and well-being benefits - Extensive WEB survey

Comprehensive questions on

- **Relationship with nature**
- **Psychological well-being:** life satisfaction (background variables), the mood during the visit, experience of recovery, cognitive skills
- **Social well-being:** the impact of the visit on social well-being
- **Physical well-being:** general health (background variables), the experience of sensations and physical presence during the visit, physical activity, height and weight (background variables)
- **Duration of health and well-being impacts**
- **Financial evaluation of health and well-being impacts**
- **Children's health and well-being**
- **Open-ended questions**



Institute for
European
Environmental
Policy



Collingwood
Environmental
Planning



I.C.L.E.I.
Local
Governments
for Sustainability



Luke
nature projects
nature friends



milieu



WWF



Committee of the Regions



European
Commission

A project funded by the European Commission
(ENV.B.3/ETU/2014/0039) and workshop hosted by
the Committee of the Regions

National parks promote social, psychological and physical well-being

	Responses		Evaluation, %					Average
	n	%	Totally disagree	Some-what disagree	No opinion	Some-what agree	Totally agree	
Increased social well-being	2011	98	0	2	14	40	43	4,24
Increased psychological well-being	2007	98	0	1	8	39	52	4,41
Increased physical well-being	2010	98	0	1	9	38	52	4,41

National parks move people

An average hiking distance on a typical national park trip was about 15 km (2013)

- *Visitors walk about 34 million kilometers in Finland's national parks annually*



National parks promote mental well-being

- *Park visits improve the mood and enhance the psychological well-being*
- *Help recovery from stress*
- *Psychological well-being benefits last longest, especially in the areas where visitors stay more than one day*



Nature is the best playground for children

According to the adults' evaluations, children...

- enjoyed being in nature
- enjoyed spending time together
- felt the joy of being on the move
- learned new skills
- gained positive experiences of self-expression, using their imagination and developing their creativity



National parks promote public health for millions of euro

- The average value perceived by visitors was 208 EUR in 2013 (median 100 EUR)
- The estimated total value of health benefits of all national park visits in Finland was 226 million EUR in 2013



The work continues...

- Standardized health & well-being indicators are part of on-site visitor surveys
- Communicating the importance of national parks and protected areas for public health and well-being
- Continuous cooperation with health sector and research institutes
- Continuous development of recreation services in order to involve new target groups





Thank you!

[www.nationalparks.fi/en/hikinginfinland/
healthandwellbeing](http://www.nationalparks.fi/en/hikinginfinland/healthandwellbeing)

Green routes without obstacles

protected areas as tools for delivering H&S benefits across borders



#naturehealth
#naturefit4all



A project funded by the European Commission (ENV.B.3/ETU/2014/0039) and workshop hosted by the Committee of the Regions

Background



A project funded by the European Commission (ENV.B.3/ETU/2014/0039) and workshop hosted by the Committee of the Regions

Background



- **Partnership !!!**
- ~ 100 protected cross-border nature areas with nature tourism infrastructure
- Absence of **available** infrastructure in bordering regions of Latvia , Lithuania and Belarus
- Cooperation with Fraternity of disabled people «Nema»





Dabas aizsardzības
pārvalde



GREEN ROUTES WITHOUT OBSTACLES

Project outputs

Tested Access to NATURA 2000/infrastructure

- 2 sites constructed in LT
- 2 sites constructed in LV
- 1 site constructed in BY
- 2 information centres adapted LT,BY

Tourism services/outdoor activities

110 providers of tourism services trained to recognize, treat and improve services for the disabled

550 guidebooks on outdoor activities disseminated

7000 Green route booklets (LV, LT, RU, ENG)



Institute for
European
Environmental
Policy



Collingwood
Environmental
Planning



I.C.L.E.I.
Local
Governments
for Sustainability



Luke
LOCAL GOVERNMENTS
INSTITUTE



milieu



WWF



Committee of the Regions



European
Commission

A project funded by the European Commission (ENV.B.3/ETU/2014/0039) and workshop hosted by the Committee of the Regions

Benefits for target group



- awareness and cognition on NATURA 200/nature values



A project funded by the European Commission (ENV.B.3/ETU/2014/0039) and workshop hosted by the Committee of the Regions

Benefits for target group



- networking and communication



Benefits for target group



- Developing new skills



A project funded by the European Commission (ENV.B.3/ETU/2014/0039) and workshop hosted by the Committee of the Regions

Benefits for target group



- Positive emotions !!!



NATURA 2000 framework/benefits

- Infrastructure



NATURA 2000 framework/benefits

- Cross-border partnership
Nature Conservation Agency (LV)



Gražute Regional Park (LT)
Augštaitija National Park (LT)

State environmental institution
«Eko-rosi» (BY)
(«Sinsha» and «Krasnij bor»
nature reserves)



What did we learn?

- Cooperation with BY
- Disabled people - varied and numerous target group open for being in and acting with nature
- Availability for disabled = availability for everybody
- Future challenges



Thank you for your attention!

Irena Muskare

irena.muskare@daba.gov.lv

Nature Conservation Agency

www.daba.gov.lv



#naturehealth



A project funded by the European Commission (ENV.B.3/ETU/2014/0039) and workshop hosted by the Committee of the Regions

Green Infrastructure and Cities

Delivering H&S Benefits in the Urban Context

Vera Enzi, Austria

European Federation of Green Roof and Wall Associations
EFB and Green4Cities



#naturehealth
#naturefit4all



A project funded by the European Commission (ENV.B.3/ETU/2014/0039) and workshop hosted by the Committee of the Regions

About EFB



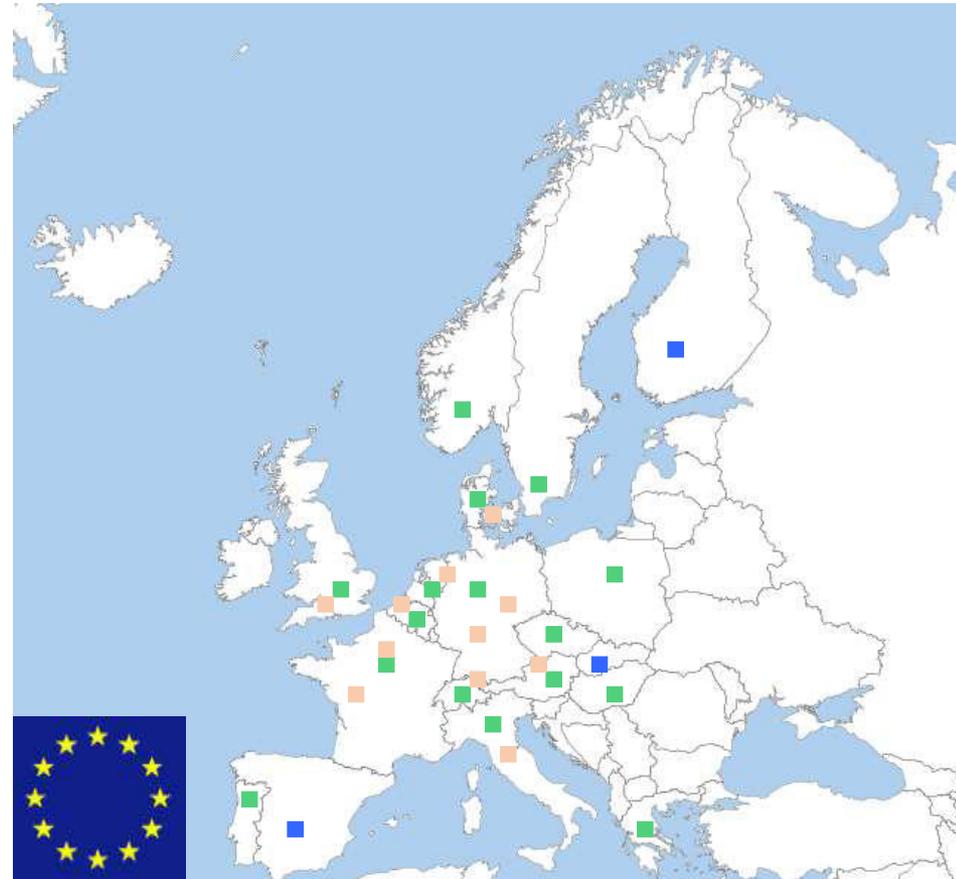
14 National Association members: low-skilled jobs in SMEs (350):

- Green Roof and Wall suppliers
- Green Roof and Wall manufacturers
- Green Roof and Wall contractors

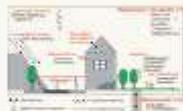
+Associates: Planners, Municipalities, Universities, Students,

+Extended Networks: WGIN and IGRA (ELCA, IFLA)

- Current EFB national member associations (14)
- Currently being supported in setting up association
- Green Roof Policy Cities



StartUp Business. Think Tank. Platform.



Development of a planning and certification tool for Green Infrastructure

2014|01|17
Project finished construction: 02/2012 – 09/2015. Content: The project aims to develop an evaluation method and urban planning tool [...]



PROGRENCity

2014|01|17
Project completed: 05/2011 – 04/2014. Content: The main of the project PROGRENCity was the provision of comprehensive greening for [...]



Gravel turfs – blooming parking places

2014|01|17
Project completed: 09/2006 – 08/2009. Content: The aim of the EU-funded Green Concrete project was to develop a scientifically [...]



PV-Roofgardens

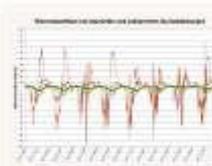
2014|01|17
Project in progress: 05/2013 – 02/2015. Content: The project PV-Roofgardens combines particularly weathered, old and new green roof constructions, building-integrated photovoltaics [...]



Green Office – LEED Platinum Certificate for Biodiverse Green Roofs

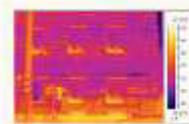
2014|01|18
Project completed: 22/2013 – 10/2015. Project Content: The project aimed implementation concepts for semi-intensive and intensive Green Roofs [...]

GREEN 4 CITIES



GreenCityClimate – Green architecture for future cityscapes

2014|01|17
Project completed: 03/2010 – 06/2013. Content: In the course of this 3-year research project, more than 30 different green building [...]



MA 48 – Vertical green wall

2014|01|17
Project in progress: 05/2013 – Content: Green4Cities team member participated in a development to cover this public building in [...]



breathe.Austria – EXPO 2015 Milano

2014|01|18
Project in progress: 01/2014 – 10/2015. Content: The Austrian Contribution to the Expo 2015 in Milano, Italy, bears the title [...]



Development of Vertical Green and Plant Recommendations for Skyscrapers

2014|01|18
Project in progress: 11/2013 – 10/2014. Content: Greening Skyscrapers is recognized as international trend in architecture, required by investors and [...]



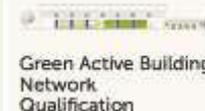
A Green Wall Guideline for Vienna, Austria

2014|01|18
Project completed: 03/2012 – 02/2013. Project Content: Patrick Blanc, new building, integrated greening systems, 100-years old chimneys on [...]



Transfer of Innovation – Green Roof Course

2014|01|17
Project completed: 10/2011 – 09/2013. Project Content: The greatest challenge facing the world today is climate change, requiring [...]



Green Active Building Network Qualification

2014|01|17
Project completed: 10/2012 – 09/2014. Project Content: The impacts of global climate change are forcing steering professions to react [...]



Transfer of Innovation II – UP! On the Roof

2014|01|17
Project in progress: 12/2013 – 11/2015. Project Content: Biosolar roofs bring all the benefits of green roofs and solar power [...]



GRÜNgeWANDt 2.0 – Austrian Conference on Living Walls

2014|01|18
Project completed: 22/02/2012. Content: In 2013, Vienna hosted a conference at the Technical University of Vienna on living walls, under [...]



European Commission: Biodiversity and Business Platform

2014|01|18
Project in progress: Since 2014. Brief Facts: Green4Cities is an active member of and contributes to the Biodiversity and Business [...]



Austrian green roof and wall association

2014|01|18
Project in progress: Since 2010. Brief Facts: Green4Cities and its experts are an active part of the Austrian green roof [...]



European Federation of Green Roofs and Walls (EFB)

2014|01|18
Project in progress: Since 2010. Brief Facts: The Green4Cities team and other experts are active members of the European Federation [...]



1ST EUROPEAN URBAN GREEN INFRASTRUCTURE CONFERENCE 2015 VIENNA
ECOSYSTEM SERVICES COME TO TOWN
23RD | 24TH NOV. 2015



Market Driver Climate Change

Vienna, Lerchenfeldergürtel 13.05.2010:



Current Market Drivers

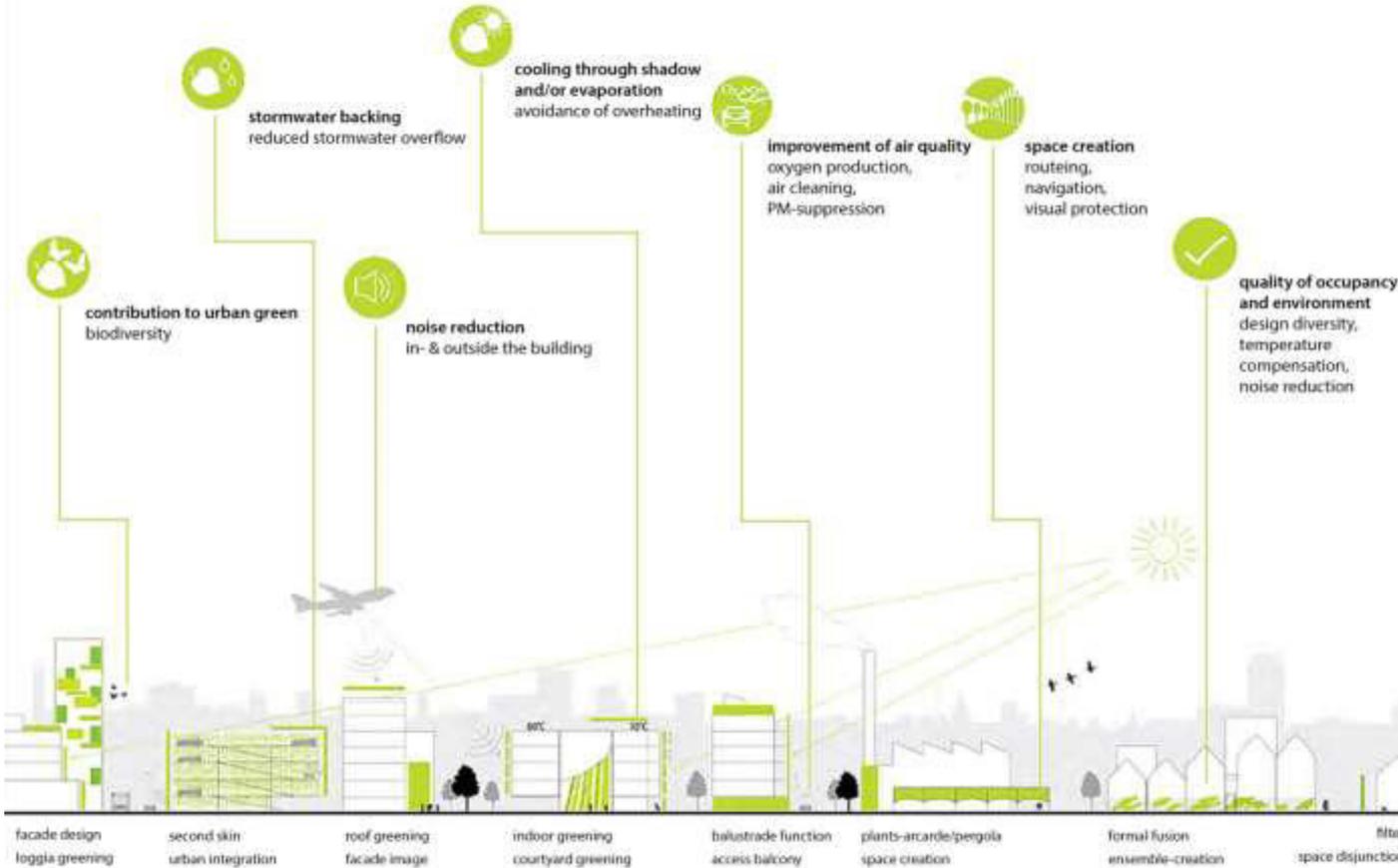
Public

- **CCA:** Severe Weather Events in European Cities (UHI Effects, Rainwater management)
- **Policy and Regulations**
- **Funding and subsidies (Roofs, Walls, Yards)**
- **Technology Safety** (Standards, Guidelines)
- **Measurable Benefits**
- **Renovation/Retrofitting needs** in old building stock

Individual

- **Financial Benefits** (Heating and Cooling, Tax incentives, fewer secondary costs e.g. Tenant fluctuation)
- **Property Value** increase
- **Activities** of NGOs and other Initiatives
- **Businesses** (Sustainability)
- **“Green Tradition”**

motivation - building optimisation / environment improvement



**Driver:
Measurable
Benefits**

**Example: A real
Impact**
(nach Pfoser, Jakobs
AG 2015)

Driver: Measurable Benefits

Example: Benefit Table Green Walls

(Urban Heat Island Strategy Vienna 2015, Austrian Greenwall Guideline being published 2016)

Table unpublished.
More information:
office@green4cities.com



Market Barriers

- **“Traditional” Urban Water Management** versus Sustainable Technology and CCA
- **Legislation, Structure, Policies**
- **Cost Effectiveness, Maintenance** (Building/Investment Lifetime Calculation Models, ROI) -> **Experts!**
- **Interest and Competition in Space and Technology** (Green vs. Solar, Mobility, etc.)
- Diversity and **complexity** of existing building stock
- **Market Size** of the Green Branches (SME)
- **Is it about Soil and Vegetation?** “Green Infrastructure” is also used for many “smart” Developments: Drainage Systems, Energy Production, E-Mobility, Passive house Technology, etc.

SWITZERLAND: Orchid Roofs



Renewable Energy Policies



Switzerland, Zürich: Using Synergy of “Biosolar”



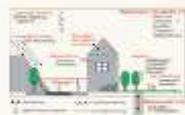
Austria, Vienna: Using Synergies PV-Greenroof Technology



Future Trends

- **Fusion of Technologies** using same space (e.g. Energy Production and Biodiversity)
- “**Blue-Green**” Thinking (Evaporation vs. Drainage)
- Switch to **optimized, Biodiversity and Sustainability focussed Technologies**
- **New Financial Models** (PPP, GI Renting Models)
- “**Urban Offsetting**”
- **Urban GI Auditing**
- **Decision-making based on Simulation Tools** (PET/PMV, Ressource Efficiency, CO2 Emissions, Waterbalance, Fine Particulate Matter, etc.)
- **Focus on Certification (of Vegetation!)**
- **Private-Public Maintenance Cooperation**

Market: New high skilled Jobs for SME's



Development of a planning and certification tool for Green Infrastructure

Project funded construction 02/2012 – 09/2015. Content: This project aims to develop an evaluation method and urban planning tool [...]



PROGREENCity

Project completed: 05/2011 – 04/2014. Content: The focus of the project PROGREENCity was the provision of comprehensive greening for [...]



Gravel turfs – blooming parking places

Project completed: 09/2006 – 08/2009. Content: The aim of the EU-funded Green Concrete project was to develop a scientifically [...]



PV-Roofgardens

Project in progress: 05/2013 – 02/2015. Content: The project PV-Roofgardens combines particularly weathered, absorbent green roof constructions, building-integrated photovoltaic [...]



Green Office – LEED Platinum Certificate for Biodiverse Green Roofs

Project completed: 02/2013 – 10/2015. Project Content: The project aimed implementation concepts for semi-intensive and intensive Green Roofs [...]



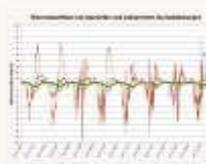
A Green Wall Guideline for Vienna, Austria

Project completed: 03/2012 – 02/2013. Project Content: Patrick Blanc, new building, integrated greening systems, 100-years old chimneys on [...]



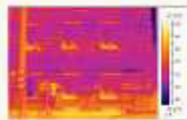
Development of Vertical Green and Plant Recommendations for Skyscrapers

Project in progress: 11/2013 – 11/2014. Content: Greening Skyscrapers is recognized as international trend in architecture, required by investors and [...]



GreenCityClimate – Green architecture for future cityscapes

Project completed: 03/2010 – 06/2013. Content: In the course of this 3-year research project, more than 30 different green building [...]



MA 48 – Vertical green wall

Project in progress: 05/2013 – Content: Green4Cities team members participated in a development to cover this public building in [...]



breathe Austria – EXPO 2015 Milano

Project in progress: 08/2014 – 10/2015. Content: The Austrian Contribution to the Expo 2015 in Milano, Italy, bears the title [...]

Business Field: Climate Proof Planning /Certification
Scaling: Meso- to Microclimatic
Performance of GI
Example: Green Pass®



Growth 2020:
 10 Offices in 10 European Countries
 7-10 Jobs per Office



Transfer of Innovation – Green Roof Course

Project completed: 10/2011 – 09/2013. Project Content: The greatest challenge facing the world today is climate change, requiring [...]



Green Active Building Network Qualification

Project completed: 10/2012 – 09/2014. Project Content: The impacts of global climate change are forcing steering professions to react [...]



Transfer of Innovation II – UPI On the Roof

Project in progress: 12/2013 – 11/2015. Project Content: BIOSOLAR roofs bring all the benefits of green roofs and solar power [...]



GRÜNgeWANDt 2.0 – Austrian Conference on Living Walls

Project completed: 22.02.2012. Content: In 2013, Vienna hosted a conference at the Technical University of Vienna on living walls under [...]



European Commission: Biodiversity and Business Platform



European Federation of Green Roofs and Walls (EFB)

Project in progress: Since 2010. Content: The Green4Cities team and other associates are active members of the European Federation [...]



Austrian green roof and wall association

Project in progress: Since 2010. Content: Brief Facts: Green4Cities and its experts are an active part of the Austrian green roof [...]

1ST EUROPEAN URBAN GREEN INFRASTRUCTURE CONFERENCE 2015 VIENNA
 ECOSYSTEM SERVICES COME TO TOWN
 23RD | 24TH NOV. 2015



DECODING NATURE



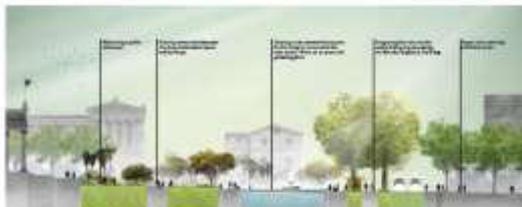
AN ENVIRONMENTAL DESIGN & PLANNING CONSULTANT IN AUSTRIA (2011)



URBAN DESIGN CONSULTING COMPANY, ARCHITECTURE DESIGN, PROJECT OF 2011, VIENNA (AUSTRIA)



URBAN DESIGN CONSULTING COMPANY, ARCHITECTURE DESIGN, PROJECT OF 2011, VIENNA (AUSTRIA)



THE ARCHITECTURE DESIGN CONSULTING COMPANY, ARCHITECTURE DESIGN, PROJECT OF 2011, VIENNA (AUSTRIA)



THE ARCHITECTURE DESIGN CONSULTING COMPANY, ARCHITECTURE DESIGN, PROJECT OF 2011, VIENNA (AUSTRIA)



THE ARCHITECTURE DESIGN CONSULTING COMPANY, ARCHITECTURE DESIGN, PROJECT OF 2011, VIENNA (AUSTRIA)



THE ARCHITECTURE DESIGN CONSULTING COMPANY, ARCHITECTURE DESIGN, PROJECT OF 2011, VIENNA (AUSTRIA)



THE ARCHITECTURE DESIGN CONSULTING COMPANY, ARCHITECTURE DESIGN, PROJECT OF 2011, VIENNA (AUSTRIA)



THE ARCHITECTURE DESIGN CONSULTING COMPANY, ARCHITECTURE DESIGN, PROJECT OF 2011, VIENNA (AUSTRIA)



THE ARCHITECTURE DESIGN CONSULTING COMPANY, ARCHITECTURE DESIGN, PROJECT OF 2011, VIENNA (AUSTRIA)



THE ARCHITECTURE DESIGN CONSULTING COMPANY, ARCHITECTURE DESIGN, PROJECT OF 2011, VIENNA (AUSTRIA)

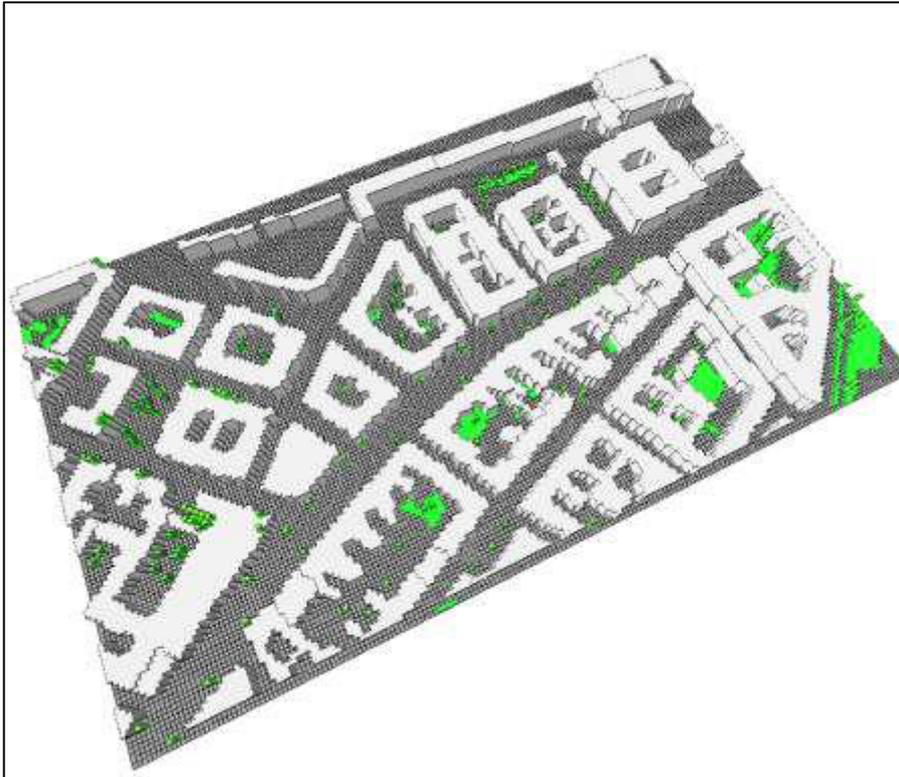
PMV | MEASURE FOR THERMAL COMFORT (OR PET: PHYSIOLOGICAL EQUIVALENT TEMPERATURE)

Tab. 1: Bewertungsgröße PMV, thermisches Empfinden und physiologische Belastungsstufen (Tab. gilt für Aktivität 'entspanntes Gehen')
(nach VDI-Richtlinie 3787, Bl. 2, VDI 1998)

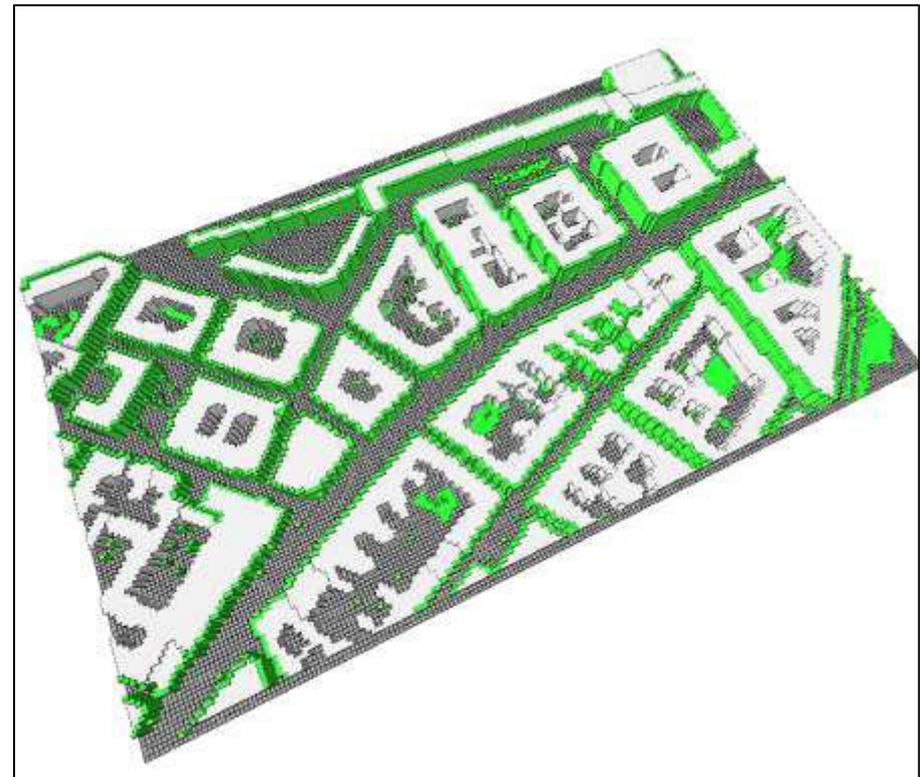
Bewertungsindex PMV (Predicted Mean Vote)	Thermisches Empfinden	Ausmaß der physiologischen Belastung
> -3,5	sehr kalt	extremer Kältestress
-2,6 - -3,5	kalt	starker Kältestress
-1,6 - -2,5	kühl	mäßiger Kältestress
-0,6 - -1,5	leicht kühl	leichter Kältestress
-0,5 - 0,5	neutral (komfortabel)	kein thermischer Reiz
0,6 - 1,5	leicht warm	leichte Wärmebelastung
1,6 - 2,5	warm	mäßige Wärmebelastung
2,6 - 3,5	heiß	starke Wärmebelastung
> 3,6	sehr heiß	sehr starke Wärmebelastung

ENVI-met Modelling | Example Mariahilferstraße, Vienna

Var 0: Status Quo

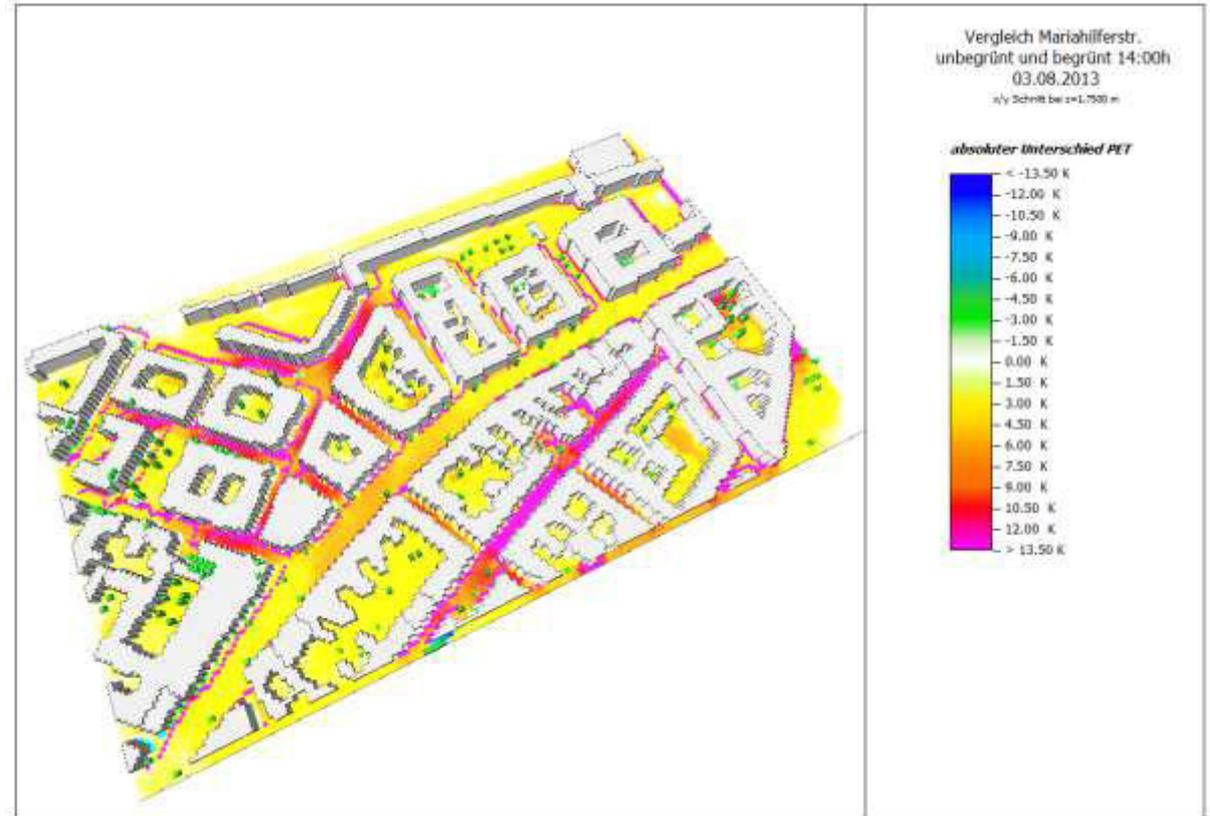


Var 1: Strategy Green Walls



ENVI-met Modelling | Mariahilferstraße, Vienna Target Output: UHI Compensation

Result: PMV Difference from 3K up to 13,5K (°C) -> UHI Effect compensation
(Bruse, Scharf 2014)



Stakeholders

Direct

- **Governments, Municipalities, Cities** (Sectors Planning, Health, Vegetation Management and Water, etc.)
- **Real Estate Developers** (Housing, Offices, etc.)
- **Facility Managers**
- (Landscape) **Architects, Spatial Planners**
- **Green Industry** (Manufacturers, Producers, Deliverers)
- Individuals, **Citizens** and Initiatives

Potentials

- **Reinsurances**/Finance Branches
- **Health Insurances**
- **CO₂ Emitters**, Multinationals
- Business Incubators, Facilitators, **Platforms**
- **Research and Development Sector**
- **Food Growing Sector**
- **City Tourism Sector**



Europe's first 0-Emission Boutique Hotel
Stadthalle, Vienna

© Reitterer, Oberbichler

stadthalle



Europe's first 0-Emission Boutique Hotel
Stadthalle, Vienna © Reitterer

A photograph of a lush, green courtyard in front of a building. The building's facade is heavily covered in ivy and other climbing plants. A large tree trunk is visible on the left. In the center, a group of people is sitting on a dark brown bench. The foreground is filled with various green plants and pink flowers. A white text overlay is positioned in the lower-left quadrant of the image.

**Europe's first 0-Emission Boutique Hotel
Stadthalle, Vienna**

© Reitterer, VfB

Policy/Frameworks/ Facilitation

- Potential: **Wastewater Taxation** (decentralized Rainwater management)
- Direct **GI Policies and Incentives** at City Level
- National Strategies and Development Plans(UHI, Biodiversity)
- Share, Exchange, Learning **Platforms**
- Communication of Benefits and Best Practice!



Green roof Market Size estimation

Examples Europe

Target Country	Green Roof Stock total m ² (2014)	Green Roofs new/year m ²	ratio extensive %	ratio intensive %	Yearly sales figures €
Austria	4.500.000	500.000	73%	27%	€ 27.350.000
Germany	86.000.000	8.000.000	85%	15%	€ 254.000.000
Hungary	1.250.000	100.000	35%	65%	€ 5.662.500
Scandinavia (S, N, DK)		600.000	85%	15%	€ 16.050.000
Switzerland		1.800.000	95%	5%	€ 51.300.000
UK	3.700.000	250.000			€ 28.000.000
	95.450.000	11.250.000			€ 382.362.500

Trend: growing (FBB DE)

Source: European Federation of
Green Roofs and Walls –
White Paper EFB 2015

Growth Potentials: Policy and Regulations, Focused Market Development S/N/E/W Europe, Innovation and Communication, Decision-Making and Planning Tools: GI Audit Processes, Multiple Benefit predictability and Green Certification, Status enhancement of Maintenance

Lessons Learned

- What is Urban Green Infrastructure? “We have to find a **common language**” . (Quote: EUGIC 2015 Jürgen Preiss, City of Vienna and Peter Massini, City of London)
- **Simple but targeted Communication of multiple Benefits.**
- **Participation and Interdisciplinarity is a MUST!**
- **“Urban GI is about Plumbing!”** (Quote: EUGIC 2015 Juliet Lindgren, City of Malmö)
- **Quality (Biodiversity) must be ensured.**
- **CCA: Quantity** is necessary to create severe Impact.
- **Monitoring/Audit Processes and Tools for Decision-making** have to be applied
- Urban Green is an **emotional** subject. 😞 😊
- We have to create a strong **network** and **trust**.

GERMANY: 100 years of Sand Roofs



SWITZERLAND: 300 species Roofs from 1910



SWITZERLAND: 4 HEKTARE BIODIVERSE GREEN ROOF Basel



SWITZERLAND: 4 HECTARE BIODIVERSE GREEN ROOF Basel



VANCOUVER: CONVENTION CENTRE (habitat restoration)



LONDON: 'BROWN' ROOF



LONDON: WETLAND ROOF



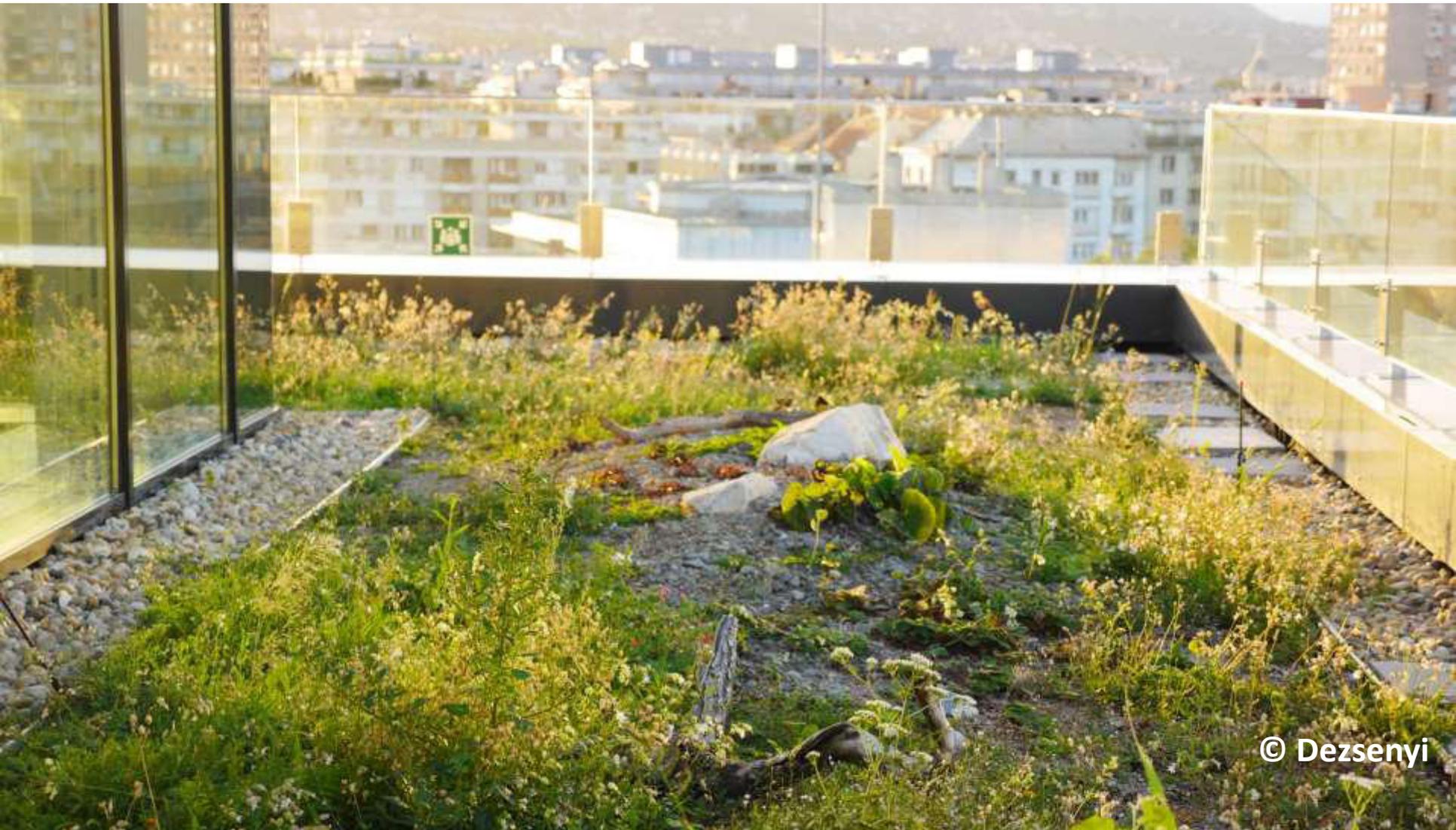
LONDON: WILDFLOWER ROOF



ATHENS: intensive “dew strategy” roof



Budapest: improved extensive hybrid Roof





© Dezsényi

Budapest: improved extensive hybrid roof



Vienna: Green Roofing for Community

© VfB

Vienna: Climber Green Walls (1920)



Vienna: Green Wall on a Public Building 2015



EFB White Paper 2015 http://efb-greenroof.eu/EFB_WhitePaper_2015.pdf

Project Links: www.gruenstadtklima.at, www.progreencity.com, www.grunaktivhaus.at, www.greenroofcourse.com, www.biosolarroof.com

Publication: Grant et al. "Creating Greenroofs for Invertebrates" www.buglife.org

Publication: Pfoser et al. "Buildings-Green-Energy" <http://www.irbnet.de/daten/rswb/13109006683.pdf>

EUGIC European Green Infrastructure Congress Vienna 2015 www.eugic.org

www.green4cities.com

Austrian Green Wall Guideline 2014 <https://www.wien.gv.at/umweltschutz/raum/pdf/fassadenbegruenung-leitfaden.pdf>

Austrian Green Roof Standard 2010 www.austrian-standards.at, Swiss Green Roof Standard 2014 www.sia.ch

German FLL Guideline on Green Walls 2000, Roofs 2008 and Indoor Green 2002 www.fll.de

Urban Heat Island Strategy Vienna 2015 <https://www.wien.gv.at/umweltschutz/raum/pdf/uhi-strategieplan.pdf>

Developing an EU-wide framework for GI

Presentation to the health & social benefits of
nature and biodiversity protection workshop

Teresa Fenn, Risk & Policy Analysts Limited

Trinomics 



Supporting the Implementation of GI

Objective is to support the Commission in implementing the actions established in the EC Communication on Green Infrastructure, with particular focus on actions which require new knowledge

Task 1: Ensure more effective promotion of GI

Task 2: Capacity building

Task 3: improving information exchange

Task 4: technical standards and innovation possibilities

Task 5: assessing costs and benefits of TEN-G

What is TEN-G?

A strategically planned network of natural and semi-natural areas designed and managed to deliver a wide range of ecosystem services

Objective is to have an EU network of GI in optimal condition to deliver essential ecosystem services throughout the EU

Priorities will need to be identified with responsibilities for condition of the network being scale-dependent

Overview of the assessment process

Assess costs of GI components and current (baseline) funding

Assess qualitative and monetary benefits of GI components in terms of ecosystem services

Determine current status of ecosystem services

Compare costs and benefits

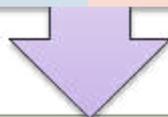
Optimise for maximum qualitative benefits, BCR, social and environmental priorities

Taking account of health and social benefits

Physical health (regulating services)

Monetary values drawn from TEEB
and review of wider literature

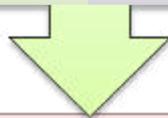
Qualitative assessment



Mental health and social benefits (cultural services)

Monetary values drawn from TEEB
and review of wider literature

Qualitative assessment



Optimisation based on delivery of social priorities

Delivery of objectives under 7th Environmental Action Programme

Key sources of uncertainty

Data gaps: missing cost data for some GI components, missing benefit data (measured in €/ha)

Assumptions: matching ecosystem services that would benefit from implementation of GI components assuming benefits are equal

Assumptions: filling data gaps, links steps in assessment and keep analysis at EU level

Data gaps: current status of ecosystem services to enable marginal benefits to be estimated

Optimising the outcomes of the assessment

What does most efficient TEN-G look like?

Maximise qualitative benefits and BCR: fund those GI components with greatest level of benefits and greatest BCRs

Maximise social: fund those GI components that deliver most social priorities

Maximise environmental: fund those GI components that deliver most environmental objectives

Funding of TEN-G

TEN-G would involve promotion of strategic investments in the EU motivated by the need to:

Protect, restore and enhance the **overall quality of the network** and to maintain certain **minimum quality levels** to ensure continued delivery of ecosystem services

Protect, restore and enhance the **delivery of priority ecosystem services** in identified geographic locations at a scale **which transcends administrative boundaries**

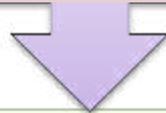
Deliver **social and/or cultural considerations** that **transcend administrative boundaries**

Funding could be public, private or a combination of the two dependent on the benefits that could be delivered

Progress and what's next

Assessment to be completed

Expected end January for comments from Commission



Study to be finalised (end February)



Commission to build on findings and develop next stage of TEN-G