



Identifying Cultural Ecosystem Services of Urban Green Infrastructure
Report about a pilot project undertaken in Lower Austria



REAL CORP 2014 in Vienna, Christine Rottenbacher + Tim Cassidy
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www.rottenbacher.at

Introduction

Access to adequate environmental amenities is fundamental for the sustainability, resilience and quality of human life in cities.

- > this requires a better understanding of ecological patterns and socio cultural processes in the places most people call home

As more people will live in cities than in rural environments this means that the daily interaction with nature for most people will come from their everyday urban places. As ESS of green infrastructure are still not well recognised in Austrian municipal councils, we initiated a place-based approach to the perception of green infrastructure and climate change in Laa an der Thaya.



Preview

- ❖ Urban Green Infrastructure and Ecosystem Services
- ❖ Investigation of Cultural Ecosystem Services
- ❖ Place based approaches to implement Green Infrastructure
- ❖ Collaborative Adaptive Management CAM
- ❖ Developing of ideas for implementation with public participation



Definitions

Ecosystem Services are ecological processes or functions that provide benefits to human society.

Urban Green Infrastructure is an interconnected matrix of vegetation, soil and water that conserves ecosystem values, functions and services.

Cultural services are regarded as the *'environmental settings, locations or situations that give rise to changes in the physical or mental states of people, and whose character are fundamentally dependent on living processes'*. Over millennia these environmental settings have been co-produced by the constant interactions between humans and nature (Church et al., 2011; Haines-Young and Potschin, 2013; in: CICES going local)

Ecosystem Services

Ecosystem Services ESS derive from ecological processes or functions that are essential for human wellbeing and have a value to individuals or society at large.

The terms ecosystem function and ecosystem service have been used interchangeably, creating confusion that still exists.

Ecosystem function is defined as the "*capacity or capability of the ecosystem to do something that is potentially useful to people*" (Costanza et al., 1997).

The capacity to deliver a service exists independently of whether anyone wants that service. This capacity becomes a service when benefits can be identified.



Urban Green Infrastructure

Urban green infrastructure is set within a human ecosystem that is defined by gradients of “nature”, and its 'domesticated' ecosystem functions, services and biodiversity.

> In negotiating a framework to recognise the potential for socio-cultural and environmental adaptations, we require a dialogue to explore the relationship between people and their urban nature.



Integrated Approach of Cultural ESS of Urban Green Infrastructure

- ❖ important to assess local knowledge and place-based values in conjunction with biophysical parameters
 - ❖ humans with their cultural diversity are an integral ecosystem component - services are indispensable to the quality of urban life.
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- > How to integrate cultural ecosystem services into decision making and planning processes!

 - > How to investigate different societal concepts of world views, meanings and attachment to place and include values associated with place!

Identifying Cultural ESS

The integrated approach in Laa has been adapted ongoingly together with a core stakeholder group of the town:

SWOT analysis - to strengthen reflection and appreciation of the natural benefits of urban green infrastructure systems

We defined together "special " areas, i.e. areas that are of a particular value, eg. for recreation, as meeting places, but also available places wherein green infrastructure can be implemented.

The cultural services were further investigated with interested neighborhood groups with the Moved Planning Process or "MPP" (Rottenbacher 2009), in conjunction with open questionnaires.

Areas of Investigations



Valuing ESS of Urban Green Infrastructure

The concept of values describes the process of evaluation by which people and their communities attach importance or significance to a natural process and socio cultural meanings within their neighbourhood.

Dynamic relationship between the biophysical and cultural worlds represented by the expressed values through place making and place meaning:

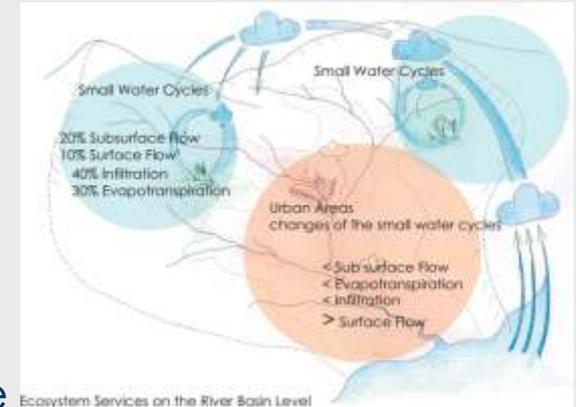
- place making - how values are manifested in ongoing behavior, engagement and maintenance of place.
- place meaning represents various phenomena of emotional relationships to places (positive and negative). The range reaches from concepts of rootedness, of belonging, protection, appropriation, the sense of possession and control over a place, of comfort, to humans' experiences with nature and wilderness.

Using Place based Approaches

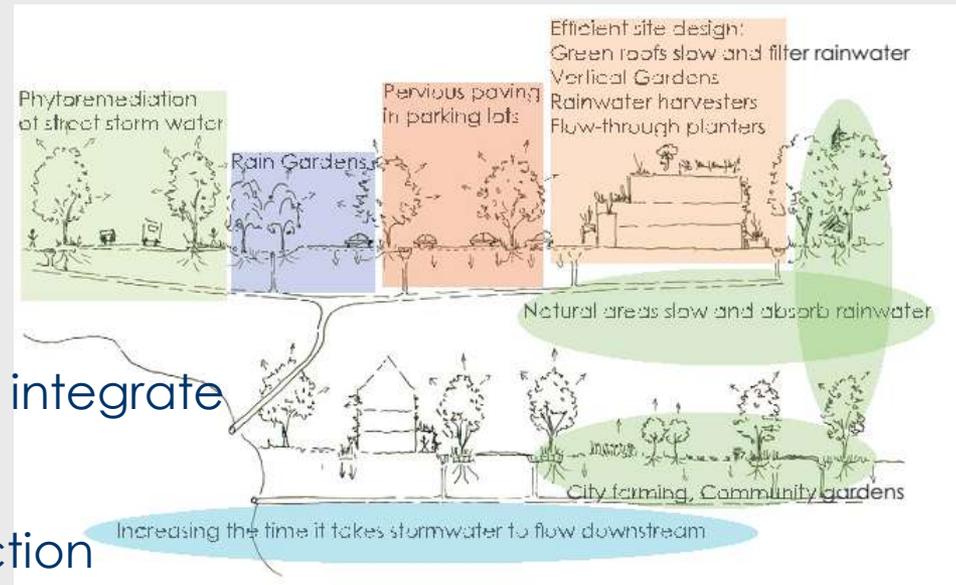
This pilot project aims:

- to enhance the understanding of ecosystem service benefits of Urban Green infrastructure
- to strengthen the potential for the implementation in place-based participation processes where it is possible for humans to perceive and understand effects of climate change, as well as the benefits of urban green infrastructure.

Within this approach the perceived cultural ecosystem services of the stakeholders were incorporated with a survey of existing ecosystem services (CO₂ storage, rainwater management and urban heat island effects)



Using Place based Approaches



Within the project we also tried to integrate communities of practice CoP's:

- to use the dynamic connection between identity and practice
- to negotiate place meanings as shared attachments and everyday routines

Within the neighbourhood groups the process of shared deciphering of place contains already prearrangements and can lead to monitoring and maintaining activities.

Identifying Cultural ESS

For surveying cultural services we combined the recent classification of CICES-Be (Turlkelboom et al. 2013) with insights from environmental studies about human health and well-being in the context of urban green infrastructure and the Moved Planning Process (MPP). Our goal was to enhance the classification, as well as to develop an implementation and management framework.

Invisible Parameters of Place Values

(investigated by questionnaires, narratives, MPP)

Place identity

Sense of place / spiritual places

Place attachment of individuals and community

Visible Parameters of Place Values

Architectural Analysis of Place

Natural Character of Place

Identifying Cultural ESS

All cultural service classes in CICES refer to a bio-physical setting that can provide cultural services. Direct benefits we can derive from cultural services are:

- recreation - physical, social, spiritual and mental well-being;
- nature exploration, contemplation;
- living in an attractive and healthy environment;
- nature education;
- motoric and creative development for children;
- ongoing cognitive recreation, reflection and development (not in CICES).
- maintainig, watering, gardening (not in CICES)

Place Character Values



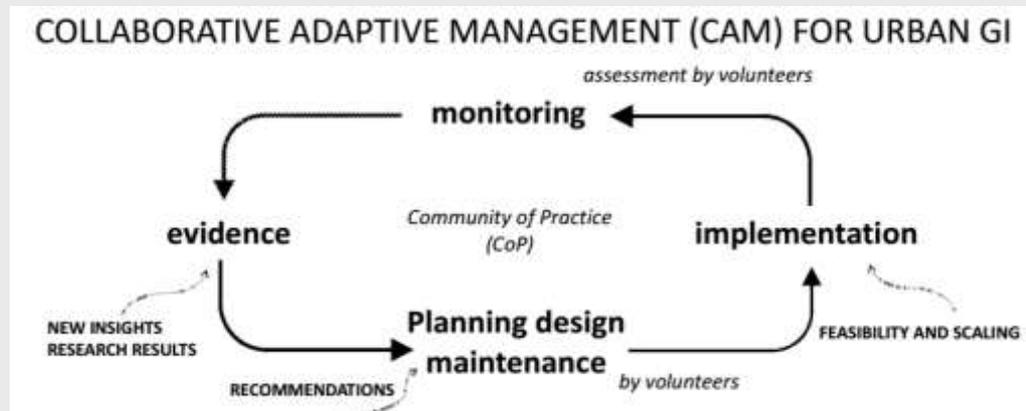
Identifying Cultural ESS

Selected place	Green Infrastructure and Natural Character	Existence	Health/Well-Being	Security	Social Relations	Meaning Of Place
	Sealed/degraded environment plaster-sealing-pot plants plaster and water-bound areas as well as minimal greenery (grass, annuals) also use of perennials + natives trees along streets parks urban forests	good air good drinking water good food free of noise free of light	physical health mental/ spiritual health	differentiation: personal security accessibility amenity sustainable facilities	definition of different qualities for meeting places, retreat places, gardening maintenance, places together	differentiation of: historical meanings aesthetic valuation naming of places and narratives

Strategy of embedding the pilot project

CAM collaborative adaptive management is an implementation approach for urban green infrastructure that facilitates community participation, collaboration, monitoring, conflict resolution and negotiation with policy impediments. Adaptive management is a paradigm that assumes urban green infrastructure actions are based on learning from actions affecting ecosystem functions and services.

- ❖ flexible platform for citizen observations and monitoring
- ❖ support for communities of practice.



Ongoing Work

The process of evaluation by which single individuals and communities attach importance to a cultural service and natural process can create a dynamic impulse for groups to immediately seek to enhance the amenity of places.

These measures have to be embedded in a planning framework that considers costs and time for implementation to maintain the community momentum. As some neighbourhood groups now demand for the implementation of urban green infrastructure they started with different initiatives to raise money, as well as the council attempts to implement single interventions.

A further decision criteria will be the calculation of existing ecosystem services (CO₂ storage, rainwater management and urban heat island effects). A number of factors have been identified so far, which can support or hinder a successful implementation of urban green infrastructure in Laa an der Thaya.

Ongoing Work

Impeding factors:

One major barrier is the differing priorities and points of view amongst stakeholders and the resultant competing interests and fears. For example the groundwater level in some areas still changes quite unpredictably, therefore the implementation of rainwater management modules will be difficult. Though there are enough data uncertainties in performance and cost still are strong. Further “trust building” activities are needed.

A guideline to select techniques and support the policy goal of the council is missing, this will be developed and negotiated with the council and further experts.

Practitioners and authorities require a demonstration of successful implementation in their own communities before they are willing to adopt any of the ecosystem service tools available.

Enabling Factors:

Meanings and relationships play a strong role in valuing cultural ecosystem services benefits as well as certain groups and individuals overtook a dynamic role in communicating and acting.

At the moment Laa has about 80 volunteers planting and maintaining public places.

