



Czech-Iceland workshop
on ecosystem services

**Ecosystem services and
sustainable development:
integrating experiences
from different regions
and scales**

20&21

november 2014

1 DAY

20 november

9:30 – 10:30

Registration and coffee/tea

10:30 – 10:40

Welcome and introduction to the workshop Prof. Michal V. Marek, Director of CzechGlobe (Global Change Research Centre, Academy of Sciences of the Czech Republic)

SESSION 1

Ecosystem services and sustainable development at the national level

10:40 – 11:00

The implementation and application of the ecosystem services concept in Iceland Jón Örvar G. Jónsson (School of Engineering and Natural Sciences, University of Iceland, Reykjavik)

11:00 – 11:20

Integrating ecosystem services into national strategies and local decision-making in the Czech Republic David Vačkář (Department of Human Dimensions of Global Change, Global Change Research Centre, Academy of Sciences of the Czech Republic)

11:20 – 11:40

The process of national mapping and assessment of ecosystem services - problems and challenges Svetla Bratanova - Doncheva (Ecosystem Research Division, IBER - Bulgarian Academy of Sciences)

11:40 – 12:40

Lunch

SESSION 2

Ecosystem Service Governance

12:40 – 13:40

Behavioural Change to Sustainability? & Experimental Role board game Pollination Tatiana Kluvánková, Eva Streberová (SPECTRA - Centre of Excellence EU, Slovak University of Technology and Slovak Academy of Sciences)

13:40 – 14:40

Panel discussion: sharing national experiences on ecosystem service assessment

14:40 – 15:10

Coffee/tea break

SESSION 3

Forest ecosystem services

15:10 – 15:30

Methodological approaches for mapping and evaluating recreation services provided by forest ecosystems and protected areas Jan Melichar, Kateřina Kaprová, Markéta Braun Kohlová (Environment Center, Charles University in Prague)

15:30 – 15:50

Integration of biodiversity-related aspects into economic modelling: the possibility of sustainable forest use at the global scale Zsófia Benedek (Centre for Economic and Regional Studies, Hungarian Academy of Sciences)

15:50 – 16:10

DPSBR framework as a background for decision making on forest ecosystem services trade-offs Pavel Cudlín (Department of Landscape Carbon Deposition, Global Change Research Centre, Academy of Sciences of the Czech Republic)

16:10 – 17:00

Panel discussion: perspectives on forest ecosystem services

2 DAY

21 november

9:00 – 10:00

Coffee/Tea discussions

SESSION 4

Urban ecosystem services

10:00 – 10:20

Urban ecosystem services governance in Poland – do Polish cities represent Central and Eastern Europe well? Jakub Kronenberg (Department of International Economics, University of Lodz, Poland)

10:20 – 10:40

Assessing ecosystem services in the Czech cities for sustainable urban planning Jana Frélichová (Department of Human Dimensions of Global Change, Global Change Research Centre, Academy of Sciences of the Czech Republic)

10:40 – 11:00

Urban gardening as producer of ecosystem services (cultural services and microclimate regulation) Michal Maco (SPECTRA - Centre of Excellence EU, Slovak University of Technology and Slovak Academy of Sciences)

11:00 – 12:00

Panel discussion: perspectives on urban ecosystem services

12:00 – 13:00

Lunch

PRESENTERS & HOSTS

ZSÓFIA BENEDEK

graduated as an ecologist interested in community ecology and conservation biology. Later she decided to complement her expertise with the related fields of environmental economics. Currently she is a junior research fellow in the Agricultural Economics and Rural Development Research Unit at the Research Centre for Economic and Regional Studies of the Hungarian Academy of Sciences. She is focusing on environmental sustainability indicators and economics of biodiversity.

SVETLA

BRATANOVA - DONCHEVA

is a head of the division of Ecosystem research at the Institute of Biodiversity and Ecosystem Research of the Bulgarian Academy of Sciences. At the same time, she is a National representative in LTER Europe Network, ILTER Network and a National coordinator of LTER Bulgaria Network.

PAVEL CUDLIN

graduated as a plant ecologist at Charles University in Prague. His branch of science has been root and mycorrhiza ecology, forest ecology and later also landscape ecology. In last 10 years he has been engaged also in the valuation of biodiversity and quantification of ecosystem service performance as a background for ecosystem service valuation. He is a senior researcher and a Head of Department of Landscape Carbon Deposition of the Global Change Research Centre AS CR.

JANA FRELICOVA

has master's degree in environmental sciences from Wageningen University in the Netherlands and a PhD in social geography from the Department of Social Geography and Regional Development at Charles University in Prague. Since 2011 she works as a researcher in CzechGlobe at the Department of Human Dimensions of Global Change. Her research focus includes integrated assessment of ecosystem services, mutual relations among ecosystem services availability and land use changes, urban agriculture and a capacity of urban multifunctional landscapes to accommodate for climate change impact.

JÓN ÖRVAR G. JÓNSSON

is a researcher at the University of Iceland currently working the economic evaluation of soil ecosystem services in the EU FP7 project SoilTrEC. Jón has a MS in Ecological Economics from the University of Edinburgh, Scotland and BS in Land use and natural range management from the Agricultural University of Iceland. He has worked for the Environment Agency of Iceland, University of Iceland and the Agricultural University of Iceland.

TATIANA KLUVÁNKOVÁ

is ecological institutional economist, 15 years of interdisciplinary research in the field of decision-making and environmental policy, associate professor in theory of politics. research interests are strategic decision making under the uncertainty and complexity (Smart governance), ecosystem service governance, multiple methods in interdisciplinary social and natural sciences. Member of Scientific Committee of the Human Dimension Program on Global Environmental Change (2003-2008), CzechGlobe (since 2013) vice president of the European Society for Ecological Economics (ESEE). From 2003 partner investigator of 10 international EU Framework projects and several Cost Actions. Presently member of Join Research Centre of excellence SPECTRA

of the Slovak University of Technology, Institute of Forest Ecology, Slovak Academy of Sciences and Comenius University. Publishing and in Science, Ecological Economics, Environment and Planning C, Land use policy, MIT press and others.

JAKUB KRONENBERG

is a lecturer in the Department of International Economics at the University of Lodz, Poland. His research interests focus on economy–environment interactions, in particular from the perspective of ecological economics. He gained international research experience while working in France, Sweden, Switzerland, the UK and the Kyrgyz Republic. Since 2009 he is member of the board of the Sendzimir Foundation that promotes sustainable development in Poland.

MICHAL MACO

has bachelor and master program in Spatial planning. He is currently a PhD student at the Institute of Management at STU Bratislava. During his studies he has successfully attended several exchange programs, internships and workshops abroad, in Sweden, Germany, Austria and Slovenia. In his diploma thesis he focused on the application of commons theories on public spaces. Thus, his PhD research develops this topic particularly concerning the governance of public and common urban spaces.

JAN MELICHAR

is a senior researcher at the Charles University Environment Center in Prague. His research mainly deals with empirical analysis in environmental economics. Research interests include recreation demand analysis, non-market valuation of forest services, external cost assessment and environmental cost-benefit analysis.

EVA STREBEROVÁ

has defended her PhD thesis at Comenius University Bratislava in environmental policy and management (2014). Currently she is working as a researcher at the Join Research Centre of excellence SPECTRA. Her research interest are sustainable management of ecosystem services and environmental and human health (cultural ecosystem services and pollination, climatherapy). In addition she gives lectures in courses at the Institute of Management of Slovak Technical University in Bratislava called “Methods of interdisciplinary research” and “ Landscape-ecological Basics” as well as at the Faculty of Natural Sciences in the courses “Environmental planning and management” and “Landscape Ecology”. She is committee member of COST IS1204 Tourism, Ecosystem services and Wellbeing. Study visits: Wageningen University (Netherlands) and IFF Institute of Social Ecology in Vienna (Austria).

DAVID VAČKÁŘ

is head of the Department of Human Dimensions of Global Change at the CzechGlobe – new centre of excellence addressing multiple aspects of global change. David holds PhD in environmental studies from Charles University in Prague and his research focuses on multiple aspects of human-environment interactions, especially ecosystem services, climate change adaptation, drivers of ecosystem transformation and environmental security. David has been coordinating several research projects focusing on ecosystem services and social-ecological systems and is teaching courses on ecosystem services at the Charles University in Prague.

& ABSTRACTS & SUMMARIES OF SESSIONS

SESSION 1

Ecosystem services and sustainable development at the national level

The concept of ecosystem services received a considerable attention in the scientific community. Ecosystem services also made some resonance in policy-making; however, full integration of this concept in decision-making requires further steps and discussions. The national-level processes are often top-down driven by strategies and policies endorsed at the global or European level, such as CBD Strategic Plan and Aichi targets or EU Biodiversity Strategy. International and intergovernmental processes such as TEEB (The Economics of Ecosystems and Biodiversity), IPBES (Intergovernmental Platform on Biodiversity and Ecosystem Services) or MAES (Mapping and Assessment of Ecosystems and their Services) support the implementation of global and EU policies. The session discusses national examples and experiences with ecosystem assessments at different levels.

Key challenges of the session are:

- ▶ present and discuss possibilities for effective streamlining of ecosystem services into decision making in the sustainable development context;
- ▶ present and discuss experiences with national assessments of ecosystem services in the context of implementation of international processes;
- ▶ exchange experience on nation-specific approaches to ecosystem service assessments.

THE IMPLEMENTATION AND APPLICATION OF THE ECOSYSTEM SERVICES CONCEPT IN ICELAND

Jón Örvar G. Jónsson

The concept of ecosystem services has slowly been entering public administration in Iceland, both at national and municipal level. The presentation covers how the concept of ecosystem services has been used in municipal planning documents in urban context (Reykjavik master plan) and in different governmental agencies (Environmental, Planning, etc.). The presentation will also go into detail of the Heidmork study which is a comprehensive ecosystem services valuation study for multiple services performed in the outskirts of Reykjavík. The Heidmork study is a good example of how this new concept can be applied in an urban context and will serve as benchmark for future studies and the application of the concept in Iceland, both at municipal and national level.

INTEGRATING ECOSYSTEM SERVICES INTO NATIONAL STRATEGIES AND LOCAL DECISION-MAKING IN THE CZECH REPUBLIC

David Vačkář

The contribution is focusing on the experiences with the assessment of ecosystem services in the Czech Republic from different perspectives. Nation-wide study aimed to estimate benefits associated with the flow of ecosystem services. Aspects of implementation of these results are discussed in the context of national strategies (Strategy on Biological Diversity, Climate Adaptation Strategy, Environmental Security Strategy). National top-down processes often fail to incorporate stakeholder perspective on ecosystem services. Therefore, experiences with participatory approaches in ecosystem service trade-off and scenario analysis are presented, including outcomes of pilot studies focusing on regulating ecosystem service trade-offs and scenario analysis of climate change adaptation.

THE PROCESS OF NATIONAL MAPPING AND ASSESSMENT OF ECOSYSTEM SERVICES - PROBLEMS AND CHALLENGES

Svetla Bratanova - Doncheva

Action 5 of the EU Biodiversity Strategy to 2020 envisages that Member States will map and assess the state of ecosystems and their services in their national territory by 2014. The Working Group MAES, which helps the implementation of Action 5, decided to test it based on the outcomes of six thematic pilots. Four of the pilots focused on Europe's main ecosystem types: agro-ecosystems, forest ecosystems, freshwater ecosystems and marine ecosystems. A further pilot focused on the use of conservation status data for assessing the state of ecosystems and of the associated delivery of services. The pilot studies contributed indicators, which can be used for mapping and assessing biodiversity, ecosystem condition and ecosystem services according to the Common International Classification of Ecosystem Services (CICES). Bulgaria is a country with very rich biodiversity and this process has many problems – which level of ecosystem we have to map and assess the main indicators for assessing the condition and state, availability of data etc. The base is the MAES process but there are specific problems and then we have to adapt this methodology.

SESSION 2

Governance of ecosystem services:

The importance of ecosystems support for sustainability and human well-being has become common scientific knowledge decades ago. Actual approaches and policies to conservation of natural resources targeting at habitat and species protection overlook ecosystem functioning and resilience of complex biophysical systems. The capacity of traditional policy instruments (regulatory, market) to operate across the scale and under the imperfect information is limited often resulting into the costly regulations, ineffective or unfair market allocation, not rarely eroding intrinsic motivations for conservation. Major gaps exist in addressing the importance

of ecosystem services and their effects on well-being in related policies.

Key challenges of the session are:

- ▶ how can ecosystem service governance trigger behavioural change to support sustainability?
- ▶ can behavioural approaches contribute to scale global biodiversity targets to local level?

ECOSYSTEM SERVICE GOVERNANCE: BEHAVIORAL CHANGE TO SUSTAINABILITY?

Tatiana Kluvánková

The scale at which decisions are made often differs from that, where they benefit different actors. Thus the vulnerability of ecosystem services is aggravated by the multilevel factor and public or common character of those goods. Ecosystem services as public or common goods are facing traditional social dilemma of individual and collective interests. The actors enjoying and producing ecosystem services rely on different information sources than those producing ecosystem services. Paper suggest novel instruments and decision-making approaches of the ecosystem services and navigation of behavioral change of ecosystems' users and managers towards sustainability under the conditions of multilevel governance and increasing pressure of global market.

EXPERIMENTAL ROLE BOARD GAME POLLINATION

Eva Streberová

Board games are interactive agent based models that allow participants coming from the most contrasting social backgrounds to understand challenges and opportunities of decision processes at different scales and multiple actors and interests. In the pollination game participants collectively decide on how to use and collectively manage an apple orchard, without collapsing the functioning of local pollination ecosystem service. The game design simulates a social

dilemma of either short-term gains from intensified agriculture production (apples) or ecological farming supported by pollination. The participants are exposed to solidarity dilemmas that emerge from the interaction of environmental constraints, social norms and public policies.

SESSION 3

Forest ecosystem services

The ecosystem service concept is penetrating step by step also into forestry management and governance, in spite of relatively strong conservatism of forestry community. In the session the questions concerning the methodological approaches to selected forest ecosystem service valuation, decision-making on forest ecosystem service trade-off and integration of some their aspects into economic modelling will be discussed, above all in the connection with the forest management decision support of the multifunctional forestry.

Key challenges of the session are:

- ▶ how biodiversity and ecosystem services translates into economic benefits provided by forest ecosystems;
- ▶ analysing the basis how ecosystem service concept can be streamlined into forest management and governance;
- ▶ what approaches and tools are available for the assessment of sustainable forest use within the context of ecosystem service assessment and valuation.

METHODOLOGICAL APPROACHES FOR MAPPING AND EVALUATING RECREATION SERVICES PROVIDED BY FOREST ECOSYSTEMS AND PROTECTED AREAS

Jan Melichar, Kateřina Kaprová, Markéta Braun Kohlová

The presentation will provide the insight into the conceptual and methodological frameworks, which are commonly utilized when forest recreation services are assessed. Attention will be given to the inclusion of recreation services within the traditional typology of the Millennium Ecosystem Assessment and how economic valuation methods are incorporated into the ecosystem assessment. We draw attention to the Economics of Ecosystems and Biodiversity and valuation paradigm based on total economic value. We briefly introduce the possible valuation and pricing approaches, their strengths and limitations when monetary values of recreation use are derived, and the alternative counting techniques for visitor monitoring when recreation consumption is measured. The best practices applied in the field of valuation and monitoring will be demonstrated on several Czech valuation studies.

DPSBR (DRIVING FORCE - PRESSURES - STATE OF ECOSYSTEMS - BENEFITS - RESPONSE OF SOCIETY) FRAMEWORK AS A BACKGROUND FOR DECISION MAKING ON FOREST ECOSYSTEM SERVICES TRADE-OFF WITHIN AN AREA.

Pavel Cudlín, Martin Čermák, Jan Purkyt, Ondřej Cudlín, Vilém Pechanec

The presentation explains DPSIR and DPSBR concepts as a tool for an assessment of the rate of natural capital exploitation in given territory by human society. It enables to describe and quantify the social and economic developments (Driving Forces) and their Pressures on the environment and, as a consequence, the changes in biodiversity and ecosystem function performance (State). This leads mostly to the decrease in ecosystem service provision (Benefits) which may elicit a societal Response that feeds back on Driving Forces, State and Benefits via various mitigation, adaptation or curative actions. An example of the DPSBR application to solve one of the most important problems of contemporary Middle Europe forestry, preference of wood production in the face of another forest ecosystem services, will be introduced and discussed.

INTEGRATION OF BIODIVERSITY-RELATED ASPECTS INTO ECONOMIC MODELLING: THE POSSIBILITY OF SUSTAINABLE FOREST USE AT THE GLOBAL SCALE

Zsófia Benedek

The presentation focuses on global forest sustainability. The aim is to identify and analyse drivers behind forest transitions and thus to study whether forest recovery and economic development can happen in the same time. An integrated ecological-economic model is used that regards the potential biodiversity-levels of different forest management types.

SESSION 4

Urban ecosystem services

Public greenery in cities represents islands of natural assets with a capacity to enhance human well-being. Conservation of public greenery can reduce the ecological footprints and the ecological debts of cities while enhancing resilience, health, and quality of life for their inhabitants. However, the role of green resources is rarely fully recognized and pressures on them (not only in cities) remain increasing. As the value of urban ecosystem services has not been adequately addressed yet its estimation remains to represent a substantial knowledge gap.

Key challenges of the session are:

- ▶ the development of the methodological basis for governance of natural capital in cities at the local level
- ▶ strengthening recognition of the urban ecosystem services' value
- ▶ an integration of existing knowledge into sustainable urban planning.

URBAN ECOSYSTEM SERVICES GOVERNANCE IN POLAND – DO POLISH CITIES REPRESENT CENTRAL AND EASTERN EUROPE WELL?

Jakub Kronenberg

With a presentation of the most recent research on urban ecosystem services governance in Poland, this talk is meant to serve as a starting point for discussion on similarities and differences between Poland, Czech Republic, and other Central and East European countries. Are we eligible to say that our research in Poland represents the broader situation in the region? The focus will be on governance, but specific issues will cover monetary valuation, institutional setting, and social network analysis.

ASSESSING ECOSYSTEM SERVICES IN THE CZECH CITIES FOR SUSTAINABLE URBAN PLANNING

Jana Frélichová

Presentation will discuss the ongoing assessment of ecosystem services in the Czech cities. The principal aim is to analyze the benefits provided by urban green and blue spaces to inhabitants by an original integrated approach. The results are expected to contribute to the recognition of the role of green infrastructure in the cities and to the field of spatial planning and sustainable urban development.

URBAN GARDENING AS PRODUCER OF ECOSYSTEM SERVICES (CULTURAL SERVICES AND MICROCLIMATE REGULATION)

Michal Maco

Ecosystem services are increasingly being identified in the urban environment, underlining their effect on well-being and resilience. Within the city, we particularly regulatory ecosystem services in form of local urban microclimate. Besides that, urban safety represents an important cultural ecosystem service and parameter for spatial planning and quality of life. It can be defined as safety of housing, public open spaces such as playgrounds and other services. Key feature is public or semi-public character of infrastructure used by individual and collective private users. They face similar problems of resource degradation, overuse, free-riders or

conflicts between actors. Thus, social dilemma over the individual and society interest exists. Empirical evidence has outlined that application of common pool resource regime proportionally depends on the degree of community involvement. The degree of self-management is generally higher, and the need for rule-establishment more emergent. Current management systems require multi-level solutions, involving all relevant stakeholders into the creation, management and maintenance of the shared space. The theory of CPRs – exploring all that we share - offers several ideas and a comprehensive framework of design principles for robust governance, developed by E. Ostrom since 1990, which describe groups that are able to organize and govern their behavior successfully. Collective action within these spaces is fundamental. In this paper, we offer a case study of a community garden in Bratislava, characterized as a semi-public space, which represents a new form of ecosystem provider in the city.

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Through the EEA Grants and Norway Grants, Iceland, Liechtenstein and Norway contribute to reducing social and economic disparities and to strengthening bilateral relations with the beneficiary countries in Europe. The three countries cooperate closely with the EU through the Agreement on the European Economic Area (EEA).

For the period 2009-14, the EEA Grants and Norway Grants amount to €1.79 billion. Norway contributes around 97% of the total funding. Grants are available for NGOs, research and academic institutions, and the public and private sectors in the 12 newest EU member states, Greece, Portugal and Spain. There is broad cooperation with donor state entities, and activities may be implemented until 2016.

Key areas of support are environmental protection and climate change, research and scholarships, civil society, health and children, gender equality, justice and cultural heritage.





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