

**32<sup>nd</sup> International Geographical Congress 2012**

**Key Topic:**

**Society & Environment**

**List of Session Abstracts**

### **Session: Analysis of linked social-ecological systems**

Chairs: Tillmann Buttschardt & Lisa Oberkircher

Abstract:

Ecological knowledge and understanding in the natural sciences is dominated by multidisciplinary and/or multiscale approaches and deals with the natural system which may consist of nested ecosystems. In the past years, new theories on the function and development of ecosystems have been developed, i.e. the resilience model. Many of these theories of complex systems could be applied to both natural systems and social systems. It seems that there is a need for a shift in approaches to analyse human-environment interaction and management.

We have to discuss how to develop strategies in landscape management which allow for stakeholders to deal with nature's dynamics in a way that strengthens not only ecological or social but also social-ecological resilience. Therefore the main focus of the symposium is to explore methods that can analyse the links between the ecosystem, local knowledge as reflected in management practice, institutions, fingerprints of human activity and environmental change.

### **Session: Applied environmental economic geography and sustainable development and planning (Panel Session)**

C. Patrick Heidkamp & Christian Schulz

Abstract:

Over the last decade, economic geography has increasingly engaged with the environment as a topic. Whether or not there is a coherent environmental economic geography, or simply various initiatives that are incorporating environmental imperatives in one form or another, is an open question. This panel session seeks to explore the (missing?) link between applied Environmental Economic Geography and Sustainable Local/Regional Development and Planning.

### **Session: Border Water Scarcity**

Chairs: Matthias Moeller & Hermann Klug

Abstract:

Water is one of the most important goods for each life on earth. Man is using water for pure life-subsistence and as an essential factor for a prosperous economy. Consequently, a sufficient water supply is one of the fundamental human rights and should be guaranteed for every individual on earth, thus the role of water is documented in the Human Rights Charta: "Water supply in this context means the amount needed for fundamental daily needs like drinking and cooking, agriculture and industrial production" (UNHCR 2002). However, looking after real water distribution pattern, an extremely unequal distribution of water can be observed. Almost all people in industrial countries have access to hygienic, clean water and may use unlimited amounts for their private purposes. In some countries the daily consumption reaches extraordinary values, e.g. in the South West of the U.S. a water consumption of more than 700l/d can be observed. This underlines the fact, that arid regions in rich countries do not show a reduction of water usage. This becomes interesting under two aspects: (1) industrialized, wealthy countries share their border with an economic weak country, water in natural rivers/streams is blocked and redirected and used before it reaches the neighbor; (2) global climate change will affect the distribution of water and will finally increase water scarcity in arid regions. The proposed session will focus on local case studies where water is redirected and a neighbor is cut off from this resource. Several reasons for this water cut off can be observed, from agricultural irrigation purposes to power production through retaining dams. There are many reasons behind this special kind of water scarcity and almost all of them can be explained using aspects of modern Geography, combining theories of Human and Physical Geography. Impact and effects of water cut offs can be documented and quantified using applied methods, e.g. remote sensing in combination with GIS techniques.

**Session: Can we manage human-nature interactions?**

Chairs: Kirsten v. Elverfeldt & Beate M. W. Ratter

**Abstract:**

The diversity of management strategies for e.g. natural resources, river catchments, biodiversity or risks indicate that managing human-nature interaction is a rather omnipresent social task. But can we at all plan or manage natural systems? Refined river engineering measures are regularly followed by even more refined counteractions to handle the unforeseen effects, and a minor volcanic eruption in Iceland had an unsettling effect on European economies in 2010. Seemingly, natural systems are neither as stable nor as predictive as assumed. Ultimately, 'more of the same', i.e. more technology, seems not to be suitable, and increases the vulnerability of societies. Complexity theories provide a perspective on system behaviour, portraying systems as non-predictable and non-mechanistic, and constantly evolving. These theories attempt to explain how relationships between system components give rise to patterns of collective behaviour that define the properties of the whole system. They explain the difficulties in assessing the actual system state and in predicting how long any stability might last as bifurcation points might suddenly lead to completely new and unpredictable system behaviour. Complexity theories help to explain that 'unforeseen side effects' are rather part of the system's trajectory than unfortunate management failure. We are not managing the environment, but the interaction of the society with the natural surroundings. Hence, management is social endeavour, and deals with the social as well as the natural system. Adaptive management accounts for the characteristics of complex, self-organizing systems and complexity theory offers an understanding of changes and surprises as integral to systems. Thus, both might offer a common language and perspective for bridging the "two Geographies". The session aims at stimulating a discussion between a) theorists and practitioners, and b) Physical and Human geographers for an integrative geography in double sense.

**Session: Capturing imagined invisibility: How to analyze social representations of climate change?**

Chairs: Lutz Meyer-Ohlendorf & Diana Reckien

**Abstract:**

Climate change is one of the most striking problems in the world today and requires concerted efforts for adequate solutions from local to international levels. The complexity of the issue, and its highly abstract and scientifically mediated character, requires translation and invites controversy. We know quite a lot about the public understanding of climate science and the role of mass media communication furthering the cause of climate change awareness in the developed world. In contrast, very little is known about both aspects in the developing world—despite the fact that most impacts of climate change will hit them harder, and most of the future emissions will come from there. From the little that is known of climate change perception in the developing world, it is evident that there are significant social differences in these countries. Understanding these social differentials is a prerequisite to facilitate a meaningful climate change discourse and to initiate socially targeted mitigation and adaptation actions. Without a sufficient degree of climate risk perception, and a thorough understanding of the necessities and opportunities of investing in a low carbon future, necessary policy actions will not come about.

In reference to the key topic "Society and Environment", this session aims to examine the social representation of climate change in developing countries from a social geography perspective. In consideration of the challenges related to the empirical research in this field, we would like to encourage especially those paper submissions offering pioneering methodological approaches for the study of social representations of climate change. Apart from standardized survey-based research, we welcome studies applying visual and qualitative research methods. We believe that these methods are particularly suitable for capturing and utilizing socially constructed images of cognition in order to analyze, compare, and exhibit the resulting mental models.

### **Session: Climate change - indications, dynamics and regional perspectives**

Chairs: Heiko Paeth & Dieter Anhuf

Abstract:

The session welcomes contributions on the assessment of climate change at the regional scale. In particular, this includes presentations on the evidence of climate change from observational data, proxy data and climate models with focus on the hot-spot regions of climate change and climate vulnerability. The aim is to draw a comprehensive picture of the future climatic boundary conditions at the regional scale from different sources of information and against the background of uncertainties.

### **Session: Climate reconstruction and climate interpretation in its cultural context for the last Millennium**

Chairs: Steffen Vogt & Rüdiger Glaser

Abstract:

The session is dealing with climate reconstructions and climate interpretation for the last millennium based on documentary data and other evidence from social and natural archives.

Contributions should focus on the specific cultural contexts, both in the methodology of reconstruction and in the interpretation and perception of climate. Leading research questions for session contributions could be

- How did societies perceive the challenge of climatic changes and climate extremes?
- How vulnerable were societies towards climatic changes and climate extremes?
- What kind of mitigation strategies had societies developed?
- How did interpretation models vary in space and time?

Goal of the session is to identify differences in mechanisms and schemes in climatic perception and interpretation across different cultural contexts / backgrounds.

### **Sessen: Contextualising gender and climate change**

Chairs: Kim Philip Schumacher & Astrid Ulloa

Abstract:

With the advancement of research on social aspects of climate change, the significance of gender as one of the important social categories of analysis has become evident. Impacts of climate change will be differently distributed among generations, age classes, income groups, occupations and genders. There is a complex and dynamic connection between gender relations and climate change. These connections exist irrespective of whether we are discussing the degree of human vulnerability to the effects of climate change, how to adapt to those effects, or ways of reducing the current high levels of greenhouse gases that are causing climate change. It is well recognised that climate change will affect women and men differently and that there are differences in the gendered contributions towards climate change (e.g. energy use, mobility, consumption) and gender specific possibilities for mitigation and adaptation including strategies to overcome carbon dependency. The degree of vulnerability to and the ability to cope with climate change can be subdivided into several impact categories such as: a) knowledge and abilities, b) professional positions, division of labour, income levels and savings behaviour, c) resource use, access and control, d) health, insurance & security and e) participation in decision-making and politics, behavioural restrictions. Integrating a gender dimension in analytical frameworks will contribute to a fuller understanding of complexity in climate change research and play an important role in enhancing adaptive capacity and identifying mitigation potentials.

The session welcomes empirical case studies and theoretical papers on the following geographical issues:

- Gender specific vulnerability assessment to climate change and gender specific coping strategies
- Gender specific emission balances
- Gender specific adaptation and mitigation strategies
- Gender specific distribution of economic and social costs for climate change adaptation and mitigation (climate justice).

## **Session: Cross-sectoral and geospatial dimensions of renewable energy production and reduced carbon emissions**

Chairs: Jan-Peter Mund & Ari Talkkari

Abstract:

The present competition on land for food or fuel production with regards to bioenergy is aggravated by the inherently inefficient way converting solar radiation of electromagnetic energy into solid biomass production by photosynthesis processes. High efficient conversion rates in biomass production can only be achieved in intensively cultivated monoculture crop and wood plantations which require large areas of land producing increasingly negative effects on the landscape structure and its biodiversity. Even with second generation of biofuels and recent improvements including enhanced woodchips, biochar and the enlargement of short rotation wood crops the contribution of is less than about 1.8% of the world's fuel production.

At the same time large scale biomass and bioenergy production is reducing carbon emissions from deforestation and forest degradation which plays a considerable role in climate change mitigation and adaptation. In addition the production of woody biomass provides a comprehensive income and regional growth potential especially for economically and structurally weak or poor and remote areas.

Due to payments for reducing carbon emissions because of bioenergy production as well as preventing from deforestation and degradation (REDD) such kind of potential investments have garnered considerable global interest. REDD programs i. e. generate a new financing stream for reforestation and strongly interact with other sustainable land and ecosystem management as well as conservation measures. Several UN agencies in coalition with international cross-sectoral bodies are discussing the paradox among spatial land management, conservation and renewable energy production in international conventions and various actions plans. For example the UN International Biofuels Forum, the UN Framework Convention on Climate Change (UNFCCC) or the Bali action have all highlighted the importance of sustainable land management with specific regards to "measurable, reportable and verifiable" (MRV) greenhouse gas mitigation actions and financial commitments.

Remote sensing approaches, amongst other applied biomass quantification methods, using most recent spaceborne VHR spectral sensors offer a set of approved and effective tools for measuring and calculating actual biomass production and carbon emission reduction. The methodological parameterization of particular bio-physiological processes support and enhance transparent monitoring and reporting for international agreements and conventions. In addition, calculating the potential for regional biomass energy production in combination with sustainable management of land resources requires reliable most recent geospatial information.

The session focuses on and discusses the geospatial methods and cross-sectoral dimensions of adapted land management measures with regards to reduced carbon emission requirements and bioenergy production from the global to the local scale. It will bridge from ecological and conservation requirements on the local scale via spatial relations and land management issues on the regional and national scale to sector policies for bioenergy production and reduced carbon emission in the global level presenting innovative geospatial and remote sensing applications or quantification and transparent monitoring requirements.

## **Session: Crossing boundaries in human-environment-system research: Exploring transdisciplinary approaches**

Chairs: Ulli Vilsmaier & Daniel Lang

Abstract:

Several societal and environmental problems are the result of unbalanced and unsustainable developments in coupled human-environment-systems (HES). The 'Grand Challenges' at the beginning of the 21st century call for new modes of research, planning and learning to create transformation abilities towards more sustainable practices. To bridge the gap between knowledge production and problem solving, closer collaboration between different societal domains (e.g. politics, science, civil society) is required to foster the necessary contextualisation of science, linking knowledge production to transition strategies and practices.

Transdisciplinary (Td) research approaches seem especially suited to this venture; as they are problem-oriented, cross disciplinary boundaries and integrate knowledge from science and society. Several research groups have risen to the challenge of developing Td approaches, aiming at tackling sustainability problems in HES. Td can be seen as a reaction to changing epistemic requirements in research and the raising complexity of challenges in HES. It makes use of specific methods and processes for integrating different scientific and societal bodies of knowledge.

However, systematic and comparative analyses and evaluation of empirically based examples of different Td approaches are still rare and there is even less insight into the relevance of context conditions, i.e. if and how Td approaches can be applied successfully in different socio-cultural and political-economic contexts and at various scales.

The proposed session aims at bringing together researchers, working on theoretical and methodological foundations, in particular of research process designs and the embedding of scientific methods in Td research contexts. In so doing, the session contributes to consolidate Td as new mode of science in different problem-fields of HES and societal contexts. A special focus will be laid on the use of Td for environmental planning.

### **Session: Expertise and the politics of the environment**

Chairs: Olivier Ejderyan & Joris van Wezemael

Abstract:

In this session we propose to discuss various approaches highlighting the ways through which expertise shapes decision-making procedures in the planning, management, and politics of human and natural environments.

During the 19th and early 20th century, expertise was established as a legitimate decision-making support to rationally govern nation-states. Expert knowledge widely based on science and state validation was presented as the way to provide the means for sound politics. However this position got questioned in the second half of the 20th century in the light of environmental harms caused by policies heavily relying on expert decision. Moreover various works in social science influenced by Marxism, Post-structuralism or ANT among others have highlighted the role of expertise in shortcutting democratic decision-making processes and framing policies. Rather than suppressing expertise these changes have led to the proliferation and the social distribution of (counter-) expertise. Expertise has thus become a pivotal element in planning and environmental policies, appearing both essential and contested. Urban and environmental planning processes at different scales offer privileged cases in order to study the multiple power/knowledge arrangements enacted through the political nature of expertise in decision making. These can be traced in settings ranging from public scientific controversies arising during environmental restoration projects to the establishment of postpolitical governance regimes for managing river basins or decision-making processes in urban planning.

We welcome contributions engaging both theoretically and empirically with the relationship between expertise and the politics of the environment according to these three main axes:

- Experts in post-political regimes;
- Expert practices between science and politics;
- Tracing expertise in complex decision-making.

### **Session: Exploring the social-environmental nexus in a resource development context: a Sustainable Livelihoods Framework approach**

Chairs: Vigya Sharma & John Owen

Abstract:

Recent trends in the resource development sector indicate a growing awareness among regulators and companies on the need to acknowledge the complex social and environmental conditions in which they operate. Corporate Social Responsibility initiatives at the global level continue to highlight the importance of both understanding social and environmental concerns, and also formulating solutions that are effective over the long-term. This, in turn, requires industry and regulators to create a system that not only helps differentiate social from environmental concerns, but also

recognises their interconnectedness. Presently, there is a tendency to treat concerns as occurring within distinct, but conceptually isolated domains.

This session will explore ways to better examine the relationship between social and environmental concerns in a resource development context. Greater clarity on this relationship is important not only to identify effective pathways to address some of these concerns; but also to develop a richer understanding of how “change” outside of these domains influences, and further complicates pre-existing social and environmental challenges.

The Sustainable Livelihoods Framework (SLF) provides a useful diagnostic tool to explore this complex, but important nexus. Moving beyond a focused analysis of issues within individual domains, the SLF has the potential to explain how domains influence, and are in turn influenced by, factors external to them. This session will demonstrate the conceptual benefits of the SLF model in drawing connections between the social and the environmental realms, particularly in scenarios of increasing complexity and uncertainty, such as climate change. It will examine the SLF concept in new light so as to advance our understanding of how climate-induced risks – both scientific and perceived – may relate to, and interact with, existing social and environmental conditions in the resources sector.

### **Session: Geographic Information Systems, society and education**

Chairs: Francis Harvey & Thomas Jekel

Abstract:

Recently, GIScientists and developers have been raving about a spatially enabled world driven by ubiquitous platforms allowing for both professional and widespread lay person use of geoinformation. This spatially enabled world has fostered - among others - three research areas concerning aspects of geographical information systems: 1) changes of society coming through application of these systems, 2) education involving these geoinformation systems and 3) education for creating these geoinformation systems. Links between them have been explored in various ways, including critical GIScience exploring connections between geoinformation use and society, education for and with GISystems in a series of publications delving into competency models for GIS education and foundations of spatial thinking, literacy and citizenship (in both secondary and postsecondary education), and the many pedagogical links between education and society. However, it seems that these research fields have lacked consistent engagement in all areas. The session brings geographers and other researchers together interested in the ongoing integration of geoinformation into social processes and therefore, changing everyday appropriation of space. This development demands consequences in the field of (secondary) education through integrated approaches. It suggests that a new set of competences is required, centered – besides technical proficiency – on reflection, participation and communication using geographical information to successfully take an active part in society. This session aims to lay out frameworks for the theoretically informed education in the spatially enabled world. It invites contributions from technology, critical GIScience and pedagogy backgrounds that actively promote links between all three dimensions and looks into forming a discourse on resulting education necessities dwelling on both technical and humanities views.

### **Session: Geomorphic systems under pressure - anthropogenic forces in a changing environment**

Chairs: Thomas Glade & Gary Brierley

Abstract:

Geomorphic systems and spatiotemporal human activity are strongly interwoven. While the study of our current landform with its processes has to include geoarchives to understand the past, the study of currently active processes has to consider the human influence. This influence can be direct by changing (and partially controlling) the geosystem itself e.g. by re-routing the river course or slope stabilization, but also indirect by changing the forces, e.g. by different weather extremes or land use. The crucial and most challenging question is, however, to differentiate the human forces from the “normal” natural forces of geomorphic systems.

This session addresses the issues related to different anthropogenic forces and their effects on various geomorphic systems. Contributions might range from detailed case studies to generalized conceptual approaches for different geomorphic systems in a variety of environmental settings.

### **Session: Global challenges & local responses: The mitigation of climate change by travel behaviour change**

Chairs: Joachim Scheiner & Martin Lanzendorf

Abstract:

For decades scientists warned about the risks of climate change by greenhouse gas emissions (GHGE). However, only recently, with the latest IPCC report, global awareness of this risk raised and issued policy questions like how to mitigate and adapt to climate change. In some emission sectors, such as industry or private households\' energy consumption, considerable success has been achieved, mainly by increasing the efficiency of technologies applied. The transport sector, however, still contributes little to the reduction of GHGE.

In this session we focus on the contribution of personal travel to GHGE and the potential that behavioural changes have for reduction. While new technologies and emissions reduction standards in policies have been widely discussed, the possible contribution of behavioural changes and more sustainable lifestyles have attained less attention by policymakers. Behavioural changes have long been perceived as a threat for individuals\' life quality and the freedom to choose their own way of life. However, recent trends show that new lifestyles are emerging in developed countries, particularly in urban areas, involving new perceptions of transport modes. While in the past the private car has dominated the "Leitbild" of mobility in many areas, more multimodal travel patterns begin to emerge, accompanied by a decreasing preference for the private car and by increasing importance of other and new modes, such as cycling, bicycle renting, car clubs or ride sharing. Some of the trends detected are triggered by the increasing importance of new ICTs like the mobile internet.

We invite contributions discussing insights in the theoretical understanding of travel behaviour changes as well as evaluating travel demand management policies and their impact on travel behaviour. Contributions may also focus on behavioural changes and associated climate change effects induced by urban developments and spatial trends, or transport supply and infrastructure changes.

### **Session: Globalisation of trade and production and (ecological) sustainability**

Chairs: Amelie Bernzen & Peter Dannenberg

Abstract:

Globalisation of trade and production across all types of commodities has led to increasingly complex, internationalised relations between suppliers and buyers along global value chains. This goes hand in hand with new challenges for sustainable development both on global (e.g. transport related CO<sub>2</sub> emissions) and local scales (e.g. pollution by local production for global value chains). While public awareness regarding the ecological (but also social and economical) problems related to these developments is rising, organizing and coordinating these global production networks has become so complex and extensive that the knowledge on how they work and how they can be sustainably shaped remains limited so far.

However, this knowledge is important to seriously identify and address main challenges of globalisation and adjust existing approaches seeking to improve sustainability outcomes (e.g. fair trade movements and environmental standards).

This session aims to discuss the manifold facets of sustainability related to globalised trade and production on regional, national and global levels, while taking into account social, institutional and environmental frameworks within which supply chains are embedded. Which are the major challenges, and which solutions are developed by the actors involved?

Papers in this session may address different aspects of the relations between globalization and sustainability including:

- Organisation and coordination of global supply chains



- Diffusion and implementation of environmental standards
- Environmental impact of foreign direct investments (tapping resources, global sourcing - local externalities justice and externalities)
- Environment and transport

**Session: Green economies: a business, society and policy approach**

Chairs: Brita Hermelin & Grete Rusten

Abstract:

The paradigm of sustainable development has raised the question about the green economy and what this involves for economic activities. The demands for conversion into ecological sustainable production of goods and services bring challenges, opportunities and limitations across various stages of the production systems. This session addresses how the economic activities of businesses and organisations – in the private and public sectors – develop strategies and actions in the paradigm of demands for increasing ecological sustainability. This involves re-organisation of production processes and systems for supplies of services as well as development and innovations of eco-friendly technologies, energy sources, products and services. It also involve a whole range of actors in-house or external firm that are engaged in developing tools, giving advice, organising procedures ,evaluating and regulating sustainable developments for products and services. These recourses involve skills and knowledge, engaging individual firms and organisations as well as network activities. These networks can include business public-private partnerships and interactions and relations between political bodies.

Topics on this planned session on the development of green economies and that can be included are:

- Business strategies for eco-innovation and green entrepreneurship
- Green-knowledge services
- Strategies, organisational models and processes around the formation of sustainable communities
- The role of networks, institutional settings and consumers for ecological sustainable production and for eco-innovations
- The spatial implications of ecological sustainable production
- Sustainable mobility and transport services.

**Session: Impact of cryospheric changes on climate and sustainable development in Central-South Asia**

Chairs: Christoph Schneider & Ramesh P. Singh

Abstract:

In south-central Asia more than one billion people depend on water resources originating from the Himalayas and the Tibetan Plateau. Almost all of the headwaters of the major rivers originating in this part of the world are fed to a substantial part by glacial melt water. Changes of the cryosphere both glaciers and permafrost due to climate variability or global climate change strongly impact water resources downstream. While the recent IPCC report was misleading in terms of probable glacier change in the Himalayas, recent research addresses the spatially complex pattern of glacier changes depending on large-scale atmospheric forcing. Recent studies show less glacier shrinkage and even advancing of glaciers in some parts of the Karakorum while Glaciers in the eastern Himalayas and on the Tibetan Plateau partly showing dramatic downwasting. Changes in the seasonal cycle and absolute water availability are of utmost importance for agricultural productivity and other water supplies on the Tibetan Plateau and all around the greater Himalayas. Furthermore, glacier change and permafrost degradation trigger a sequence of natural hazards including glacier lake outburst floods, slope instability etc affecting the population living in locally and at the regional scale. The impact of changes in snow-glaciers and hydrological resources leading to the change in climate affecting the population living in south Asian region will be discussed in terms of natural water availability for crop growing and grazing, irrigation systems, urban water supplies downstreams and mitigation of natural hazards such as flooding, mass movements and drought risk. The session aims at bringing together major experts in the field to draw a coherent picture of water related issues associated with the variability in cryosphere in view of the climate change especially

asking for contributions that relate natural science assessments to natural hazards, and social and economic impacts affecting the population of the region. Both, oral and poster contributions are welcome."

### **Session: Integrated water resource management and land use change in South America**

Chairs: Carsten Lorz & Rene Hoefler

Abstract:

Water and land-use change is a major issue in many emerging countries of southern America. Natural conditions, including strong seasonal contrasts and high climatic variability, are major reasons for restrictions in usable water resources. In addition, water resources are frequently threatened by rapid changes of land use/cover mostly caused by dramatic expansion of agricultural land and urbanization processes. Effects of changing climate are frequently thought to add as natural stressor to these problems, but mostly climate predictions only with low spatial resolution are available. In general, a substantial lack of data for regional patterns of climate change and land use effects on water resources are to notice. A further stressor is that water demand is increasing rapidly in some regions due to higher population densities caused by natural population growth and migration as well as higher per capita consumption. The session will provide a platform for research on integrated water resource management in southern America dealing with causes, effects and solution of water problems. Major issues might be water scarcity in arid and semiarid regions, water quality in agricultural areas, water quality in urban areas, sediment management to prevent silting of reservoirs, or human water consumption versus irrigation. The main emphasis of presentations should be case studies highlighting the potential of approaches to be transferred to other regions.

### **Session: Integrative approaches to water resource management in times of global change**

Chair: Flurina Schneider & Olivier Graefe

Abstract:

Both climate change and socio-economic development will significantly modify the supply and consumption of water in future, and consequently stress existing management patterns and regulations of conflicts of interest. Against this background, water management practices and strategies have to be fundamentally revisited. Water management is regarded as the expression of a historically evolving interaction between biophysical properties and social relations. The regulation of these socio-ecological dynamics is the core of water management, which shapes the waterscape, i.e. where water is tapped and stored, and how it is distributed to the different water users according to socially negotiated rules.

The aim of this session is to provide space to discuss more integrative and alternative approaches to water management. We especially welcome conceptual or theoretical contributions to the following areas:

- Interdisciplinary studies tackling questions of water management in times of global change, which focus on the integration of physical and human geographical perspectives: What are suitable approaches to integrate research on water resources, water use systems, and water governance (from integrative modeling to qualitative bridging concepts)
- Scales of water management: What are appropriate scales of water management – river basins vs political units? What are potential and limitations to governance approaches such as IWRM?
- Stakeholder dialogue: How can stakeholders be fruitfully involved in research or projects related to more sustainable water management? What are enabling or hindering factors in processes of transdisciplinary co-production of knowledge and social learning?

Empirical case studies can be from the Global North or South in order to enable a comparison of approaches, experiences and best practices.

**Session: Localising climate change in a development context: Adaptation to what?**

Chairs: Chinwe Ifejika Speranza & Detlef Müller-Mahn

Abstract:

Adaptation to climate change in the global South is a spatially and socially highly differentiated process that depends not only on the exposure of local populations to changing environmental conditions, but also on their perceptions of these changes, their vulnerabilities and adaptive capacities. From the perspective of poor communities climate change is often only one among a number of critical challenges to their livelihoods. The papers in this panel shall present approaches that contextualize adaptation to climate change in a development context. Localizing adaptation to climate change in a development context may have two meanings: First, from a local perspective, case studies may be presented, for example of community based adaptation strategies. Secondly, papers may also discuss the role of global discourses about climate change and how they and the “adaptation paradigm” are being translated into local contexts, for example in terms of travelling ideas that are produced in the global North and then transferred and locally appropriated and modified in the South. Thirdly, empirical papers are invited that shed light on the “basis for researching” local actors’ actions and strategies as “adaptation to climate change”

**Session: Man and environmental change: progress in geoarchaeological applications**

Chairs: Helmut Brückner & Kosmas Pavlopoulos

Abstract:

Few scientific disciplines related to the wide field of geography emphasise the multidisciplinary approach as strongly as geoarchaeology does. Directly at the interface between science and humanities, the idea of geoarchaeology comprises on the one hand the application of earth-science techniques in order to solve archaeological problems, and on the other hand the evaluation and quantification of the human impact on the physical environment. The methods involved are either deeply rooted within the geographical sub-disciplines or neighbouring academic fields, including geomorphology, soil science, geoecology, population and urban geography, geoinformatics and remote sensing, archaeology, (pre-)history, anthropology, palaeobiology, geochemistry, geochronology and others.

This session is dedicated to the presentation of the latest developments in geoarchaeological research. We encourage researchers to submit papers on progress in methodological approaches as well as those who are presenting original data on the application of state-of-the-art techniques in the context of regional case studies. Any study implying the interdependencies between human societies and landscape changes in the past may be of interest. The session is co-sponsored by the International Association of Geomorphologists, Working Group on Geoarchaeology.

### **Session: Palaeoenvironmental reconstruction along the corridors of modern human dispersal from Africa to Europe**

Chairs: Frank Schäbitz & Henry Lamb

Abstract:

The routes and driving forces of *Homo sapiens sapiens* dispersal events from East Africa to Europe are still under debate. Recent publications and research projects shed light on both the environmental settings and the cultural influences during the past 200,000 years when the first modern humans originated in Ethiopia. Based on information from terrestrial sedimentary archives, geomorphology and archaeology, new data on how climate change may have influenced these early human societies will be presented. There may have been three main dispersal corridors: eastern routes via the Nile valley, the Levant, Turkey, and the Balkans; western routes via northern Africa and lakes of the Sahara, the Strait of Gibraltar, Spain and France; or south-easterly routes via the Horn of Africa and Yemen, along former coastlines to Mesopotamia and northwards to the Black Sea). How and when these modern human populations interacted with Neanderthals are fascinating geoarchaeological questions. Furthermore, the influences of the new environments on cultural behaviour and population densities are themes that will be discussed in this session. This session will attract physical geographers working in the Quaternary as well as geoarchaeologists, and will offer a good platform for a broad discussion between international experts.

### **Session: Plants, play and place: Green Environments as a contribution to children's healthy development**

Chairs: Silvia D. Schäffer & Christina R. Ergler

Abstract:

Since economic growth picked up after the Second World War, car dependency, technological improvements and urban sprawl have changed the play environments of children significantly. Their natural worlds are transforming and shrinking. Knowledge about flora and fauna, time for free and unstructured play, as well as children's roaming distance is decreasing. Reasons for this trend are seen in a changing built environment and in parental concerns over their child's well-being, for example concerns regarding 'stranger-danger' or traffic safety. Increasingly, children are drawn to indoor sedentary activities. Research, however, shows that the experience of nature is a critical component of children's emotional and physical development, for example spending time in or observing nature has a therapeutic effect. Although researchers, learning institutions and policy makers increasingly acknowledge the value of a reconnection with nature, research around natural settings still primarily addresses adults. Children's voices are underplayed in these discussions neglecting green environments as arenas for child development, refuge and resilience. Research on the significance of nature for different stages of childhood (e.g. pre-schoolers, primary school children and youths), different environmental settings (e.g. parks, fields and forests) and health (e.g. infectious disease, obesity and mental health) as well as on the role of different stakeholders (e.g. public, private) are still sparse. This session asks to what extent nature plays an important role in fostering the healthy development of children and preparing them for functioning in a complex world. Researchers will draw upon recent theoretical approaches and case studies researching children's experiences of nature to expand the discussion on natural settings as an arena for healthy child development. By thinking about children's nature experience at a very broad level, this session will open up a space for researchers working with children and young people to reveal and expand understandings around children's different encounters with nature. Increasing knowledge on children's and young people's encounters with natural settings may not only facilitate a healthier development, but can lay the basis for emotional attachment to and protection of natural environments.

### **Session: Protected areas and tourism planning – preparing for global challenges**

Chairs: Susanne Becken & Hubert Job

Abstract:

Worldwide there are more than 100,000 protected areas, covering about 8% of terrestrial surface. The existence of protected areas is essential for maintaining and enhancing biodiversity globally. Most protected areas also function as important tourist destinations. In many cases, protected areas are located in peripheral and economically disadvantaged regions, thereby providing the potential to balance existing disparities. As such tourism to protected areas becomes a critical factor for regional development.

Both protected areas and tourism are increasingly exposed to a wide range of global challenges. For example, climate change will add pressure to already stressed ecosystems and will also potentially increase natural hazards posing risks for visitors. Increasing resource scarcity (e.g. water) and raising energy costs (e.g. following a peak in global oil production) will also pose constraints. Intensification of land use will make it increasingly difficult to maintain protected areas predominantly for conservation purposes. Further, societal and demographic changes, such as changing leisure behavior, are also likely to change tourists' expectations and visitation patterns.

Building on McNeely's (2003) scenarios for the future of protected areas, it is important to proactively understand, analyse, evaluate and prioritise key issues facing protected areas and tourism. The development of appropriate planning strategies needs to take into account the potentially conflicting goals of nature conservation, tourism land use and regional development. The goal to protect both ecological (e.g. bioservices) and social commons (e.g. the right to recreate) needs to be discussed in this context.

### **Session: Relationships between climate change and socio-economic processes in the Arctic**

Chairs: Tatiana Vlasova & Susan A. Crate

Abstract:

The Arctic is expected to warm at twice the global average rate and climate changes impacts are more pronounced in the Arctic, opening new perspectives and thresholds and having far-reaching consequences for ecosystems and for the people dependent on ecosystem services. In spite of many investigations we still do not know enough to understand the complex interrelations between the climate changes consequences and human activities and abilities to respond. Impacts of climate change interact with other large-scale processes, such as urbanization, globalization, increasing resource demands and human impacts on ecosystems, and increasing risks of pandemics. All of them lead to synergistic effects that will affect subsistence-dependent local and indigenous communities and modern societies in different ways. Understanding the relationship between climate change and socio-economic processes happening in the whole Arctic geographical zone, its regions and local communities is important in order to develop mitigation and adaptation strategies at different spatial scales (from local to global). Abstracts under this session are invited to discuss many topics of climate change impacts including such as: increase in climate instability and the inconsistency of the seasons, rise in number of extreme events, seasonal changes in the regime of ice melting on rivers, the sea ice melting and rising seas, declining terrestrial snow cover, widespread thawing of permafrost, taiga-tundra zone dynamic, etc. Although it is known that climate change is already causing massive loss of lives and homes, disadvantages in food and water access, floods, vulnerability to climate change impacts is unevenly distributed among different regions and social groups. Local and indigenous peoples dependent on resources from local ecosystems and with cultural identities closely linked to land-use patterns are most vulnerable. We greatly appreciate the talks devoted not only to societal consequences but also aimed to reveal abilities to cope with or adapt to climate changes, and recommend strategies to enhance resilience and adaptive capacity. Also the discussions of climate change impacts bringing positive consequences to societies are welcome: opening of the sea routes, abilities to increase vegetable productions and forage for reindeers, etc. Moreover we invite those papers to discuss the methodological approaches which helps to understand the complex interactions between climate change and socio-economic processes in the Arctic, for example those which are based on the local indigenous peoples knowledge and

multidisciplinary science integration. The session is going to be tightly connected with the activities of the IGU Cold Regions Environment Commission (the chair is a member) and National Geographical Societies.

**Session: Senses of identity and belonging in coastal regions in transition**

Chairs: Tialda Haartsen & Beate Ratter

Abstract:

Inhabitants of coastal regions in North West Europe have been living with, and struggling against the sea for ages. Nowadays, many coastal regions are considering ways to adapt to global climate change and rising sea levels. This session focuses on how inhabitants of such coastal regions feel about their changing home regions. In which ways do they still feel connected to the sea in their everyday lives, now that traditional occupations like fishery and agriculture have become less important, and risks of storm surges have been diminished since the development of modern coastal protection? How do (changes in) the social and physical landscapes of the coast play a role in the ways the inhabitants identify with their region?

**Session: Societal perception and relevance of river and floodplain restoration measures**

Chairs: Bernd Cyffka & Hans-Martin Welp

Abstract:

River and floodplain restoration is a necessary instrument of our time. The society has realised that many intended as well as unintended actions and measures of the past in the riverine and riparian field cannot be sustained in future. Therefore, management plans provide concrete measures and ideas for restoration or at least remediation.

In many cases these measure are well-founded and sophisticated. Sometimes, however, one can get the impression that measures are too sophisticated because they lead to a 'fake nature' – the result is nature-like, but not self-sustaining. Levees, for example, run alongside many river stretches in Europe, and the connectivity of the floodplain and its river is not working naturally. Water, sediment and nutrients are brought from the river into the floodplain by controlled outlets only. In other places it is necessary to manage the sediment budget; groundwater has to be supported artificially, etc. Nature is not working by nature, but only by control of man.

What does the society think about it? Are measures perceived in the correct way, will they be accepted in any case? Can the perception of nature by the society influence political decision or, the other way round, can political decisions for remediation measures make the society believe that the result is a nature-like environment, self-sustaining for the next decades?

This session should focus on the interplay of restoration and remediation measures, political decisions and the belief of the society in a u-turn to a better future environment.

**Session: Soil erosion and terrestrial carbon cycling**

Chairs: Verena Dlugoss & Nikolaus J. Kuhn

Abstract:

Soils are the largest terrestrial carbon (C) pool, globally storing approximately 2300 Pg C in the top 3 m. Annual C exchange between soils and atmosphere is roughly  $\pm 60$  Pg C. Hence, any processes affecting the size of the soil C pool will substantially change the CO<sub>2</sub> concentration in the atmosphere and introduce positive or negative feedback mechanisms to global climate change. Against the background of global climate change and the possibility to sequester CO<sub>2</sub> in soils, the significance of anthropogenically accelerated soil erosion on arable land for the terrestrial carbon cycle has been recognised in recent research. However, global estimates of the role of soil erosion differ substantially, ranging from an important CO<sub>2</sub> source to a CO<sub>2</sub> sink of the same magnitude. On the one hand, the different estimates originate from the complex nature of soil erosion encompassing the detachment, transport and deposition of soil particles in terrestrial ecosystems as well as their export into the fluvial system. In general, there is a lack of process understanding with respect to the interaction of these discrete processes with soil organic carbon (SOC) dynamics as well as of their balance at the catchment or landscape scale. On the other hand, the investigation of the role of SOC

in the global carbon cycle is generally exacerbated by the complex nature of SOC being composed of different decomposition and humification products with turnover times from years to millennia. Different SOC pools might be preferentially eroded and/or deposited leading to spatial differences of mineralisation and stabilisation of SOC. The proposed session is open for all research dealing with the effects of soil erosion on soil and sediment carbon stocks and fluxes from the hill-slope to the fluvial system. Both measuring and modelling studies are highly welcome. We encourage contributions focusing on different spatial and temporal scales and on short-term single processes as well as on long-term catchment or regional C scale balances.

### **Session: Sustaining ecosystem services in cultural landscapes: Analysis and management options**

Chairs: Tobias Plieninger & Dan van der Horst

Abstract:

Classical conservation approaches focus on the man-made degradation of ecosystems and tend to neglect the social-ecological values that human land-uses have imprinted on many environments. Throughout the world, ingenious land-use practices have generated unique cultural landscapes (e.g., the rice terraces landscapes of the Philippines), but these are under pressure from agricultural intensification, land abandonment, and urbanization. In recent years, the cultural landscapes concept has been broadly adopted in science, policy, and management. The interest in both outstanding and vernacular landscapes finds expression in the UNESCO World Heritage Convention, the European Landscape Convention, and the IUCN Protected Landscape Approach. These policies promote the protection, management, planning, and governance of cultural landscapes. The ecosystem services approach is a powerful framework to guide such efforts, but has been rarely applied in landscape research and management.

This session aims to enhance the theoretical, empirical and practical knowledge of how to safeguard the resilience of ecosystem services in cultural landscapes and welcomes contributions that:

- critically review the usefulness of the ecosystem services approach to the analysis and management of cultural landscapes;
- assess the broad and interrelated array of ecosystem services provided by cultural landscapes;
- identify the main drivers of change in cultural landscapes and their impact on ecosystem services provision; and
- explore adaptive and effective ways of landscape management for ecosystem services provision.

This session targets scholars in landscape ecology, spatial planning, human geography, and related fields.

### **Session: Technological and environmental Change in the South**

Chairs: Raquib Ahmed & Boris Braun

Abstract:

Technological development in industrialized countries has mostly taken place in a wider spectrum of science and has been integrated into society largely based on peoples' needs and preferences. In many developing countries technological modernization diffused in a rather isolated or discrete form depending on specific political situations, international links and global political transformation. In many occasions technological change has contributed positively to the development in the Global South, but in other occasions it led to an unbalanced spread and absorption of modern technologies. Sometimes new technological developments even appear to be in open conflict with peoples' requirements. This situation seems to be true in many cases of natural resource exploitation, infrastructure development, ecosystem management, etc. However, new technological concepts have also been developed in the South to solve local environmental problems and might have, though in many cases not yet proven, problem solving potentials in developed countries as well. This raises two questions. One is the status of technological development in the South to study the natural environment and its changes. The other is how new technologies are being utilized in the South (and the North) to solve real-world problems. This session will concentrate on related aspects such as (i) sectors of current and future techno-environmental changes and their dynamics, (ii) development and application of new technologies to study and monitor environmental change, (iii)

new ideas to protect the natural environment and (iv) the potentialities of technology developed in the South for mitigation of and adaptation to environmental problems in the North

**Session: The social construction of cultural landscapes: New concepts of “landscape” in social sciences, cultural studies and geography**

Chairs: Winfried Schenk & Johannes Renes

Abstract:

In recent years cultural landscapes were regarded from new angles. Attention has shifted away from normative and naturalistic to reflexive and constructivist concepts of “landscape”. Scientific approaches like New Cultural Geography, Discourse Analysis, Cultural Studies, New Institutionalism, Cultural History, Cultural Anthropology or Actor Network Theory have (re)discovered the topic of landscape. In the meantime there exists a huge variety of new disciplinary and interdisciplinary perspectives on the social construction of landscapes. Comparing and relating these approaches against the background of different national traditions in the conceptualisation of landscape is obviously worthwhile.

The session takes a closer look on how the concept of (cultural) landscape is socially constructed.

Firstly: Which concepts of landscape dominate in different policy fields and academic disciplines?

What are the differences and similarities between conceptualisations of “landscape”, “nature” and “culture”? Which elements of national and/or disciplinary research traditions are relevant? And

secondly: How are “cultural landscapes” constructed in subjective perception, identification and social interaction? What are the roles of individual and collective actors or institutions in the process of the social construction of a specific cultural landscape as an ontological entity? What are the connections between symbolic representations of landscapes? What power structures are manifested in the social construction of landscapes? To what extent can landscapes in a physical sense be read as an expression of hegemonic forces within a society?

These questions relate to the societal and political contexts of the construction of (cultural) landscapes. They bear relevance to further geographical landscape research as well as to the management of landscapes (e.g. in the context of the ambitious European Landscape Convention).

**Session: The third pillar as an interface between the two geographies? Chances and challenges of an integrative approach towards global change**

Chairs: Kirsten v. Elverfeldt & Peter Weichhart

Abstracts:

The splitting up of geography into Human geography and Physical geography reflects a much wider gap: the separation of social and natural sciences. Both geographies are highly specialised and show, in most cases, a much closer affinity towards the neighbouring disciplines of Physics and Sociology than towards each other.

However, within the last decade there has been a growing awareness that neither human geography nor physical geography are able to find solutions for the pressing issues of the 21st century (i.e. global change, natural hazards and risks etc.) on their own, as neither the ‘matter-free’ social sciences nor the natural sciences, fascinated by technology, offer satisfactory answers to these problems. It may thus be argued that these questions constitute a new scientific object for which new theoretical and conceptual approaches as well as specific methods are required (as proposed by the concept of the “third pillar”). Yet, one problem is still remaining, namely the problem of communication barriers between Physical and Human geographers as both have developed different and even contrasting methodologies, which hampers scientific dialogue and innovation. There seem to be three different pathways to cooperation:

- 1) working on joint projects;
- 2) the development of common methods; and
- 3) the utilization and elaboration of theories that offer a framework for natural phenomena as well as for social ones and their hybrids.

In this session we would like to discuss ways how these barriers are overcome in research practice and which of the pathways have been chosen so far especially within the framework of Global



Change. Which theoretical and conceptual approaches have been developed, if any at all? What are the common grounds of joint projects of the two geographies? Which background theories have proven useful? Or is the third pillar still a “theoretical vacuum” that is a challenge to any scientific cooperation of Physical and Human geographers?

**Session: Tibetan Plateau ecology – Research on the past and present role of the Tibetan Plateau for the monsoonal climate of Asia**

Chairs: Volker Hochschild & Frank Lehmkuhl

Abstract:

The Tibetan Plateau is a key area within the earth system with its outstanding relevance for the global climate dynamics because of its huge extension on high altitudes and the resulting importance for the Asian monsoon system. Although there have been many investigations on parts of this complex ecosystem in the recent past, knowledge about physiogeographical processes and today's human impact on the Tibetan ecosystems is still limited, especially on their spatial and temporal dimensions. Several interdisciplinary working groups are tackling the great challenge of human and global change impact on the Tibetan Plateau, following recent studies on climate development (Yu et al. 2001, Treydte et al. 2006, Wang & Ding 2006, Wu et al. 2006), glacier retreat (Thompson et al. 2003, Ye et al. 2006), lake hydrology (Cyranoski 2005) and on vegetation patterns (Chen et al. 2005, Zhou et al. 2006). The proposed decay of the Tibetan permafrost (Böhner & Lehmkuhl 2005) will have a strong impact on soil hydrology and the forming of wetlands (Zhou & Zhou 1997).

Interdisciplinary presentations from geomorphology, lake sediment stratigraphy, biogeography, glaciology, hydro-logical modelling and remote sensing as well as human impact assessment are anticipated.

**Session: Transition of energy systems and green industry development**

Chairs: Britta Klagge & Harald Rohrer

Abstract:

The transition from carbon-nuclear-based to more sustainable energy systems with a strong role for renewable energies is a complex process involving technological as well as socio-political changes and paradigm shifts. It is also associated with the emergence, growth and internationalization of green industries focusing on renewable energy production and related activities. The spatial implications of these developments are manifold and have the potential to profoundly alter socio-economic structures at various geographical scales. These include changes in the governance structures of power production itself, in which centralized and decentralized production modes compete with each other and have very different implications for regional development. Industry evolution is a close correlate and at the same time has its own geographical dynamics when e.g. the wind industry is now a global business in which large companies from industrial countries compete with fast-growing enterprises from emerging economies. Institutional changes at various scales, especially in the realm of energy, industrial and trade policies (mainly at the national level) as well as driven by climate change and financial market imperatives (at the global level), are influential in shaping future geographies of (renewable) energy production. The session invites papers from various perspectives, including systems, actor-oriented, institutional and governance approaches, to contribute to a better understanding of these geographies and the underlying transition(s).

Keywords: energy system, transition, governance, renewable energy

**Session: Urban landscape and nature**

Chairs: Sascha Henninger & Olaf Kühne

Abstract:

The urban ecosystem is a paradigm for the human ability to affect natural landscapes by urban-industrial agglomerations. Due to an increasing number of inhabitants and also an advanced level of civilization urban areas created different types of flows, this places the naturally trophic pyramid upside down. The group of producers is vanishingly small in comparison to the consumer's side. Therefore, urban landscapes are dependent on several natural ecosystems outside the urban area,

partially far away and out of place. Whereas the urban ecosystem is neither natural nor a near-natural ecosystem it is necessary that the urban site is permanently provided. Perfect functioning energy, material and substance flows have to be ensured in and out of the urban agglomeration. Sealing the natural landscape means modifying it and creating a new local, characteristic urban climate, another water budget, a different type of urban soil and a diversified flora as well as fauna.