



Centre for Ecomics and  
Ecosystem Management



*Centre for Ecomics and Ecosystems Management*

*Institute of Ecology – Dept. of Soil Science*

*Eberswalde University for Sustainable Development*

*Technical University of Berlin*

*Writtle College (partnership with Essex University)*

invite you to an international workshop titled:

## ***Ecomics as an emerging framework for ecosystem-based sustainable development***

**Ecosystems provide an essential template for socio-economic systems**



*“The shaped is immediately reshaped, and if we want to fairly achieve a living conception of nature, we have to maintain ourselves as mobile and flexible, according to the example with which it precedes us”.*

Johann Wolfgang von Goethe (1817)

# ***Econics* as an emerging framework for ecosystem-based sustainable development**

## **Ecosystems provide an essential template for socio-economic systems**

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**The concept of *econics* is presented as a distinctive branch of scientific inquiry, which uses ecosystem theory and ecological research to develop a framework for understanding how to promote sustainability in all aspects of human life. It uses ecosystems as templates or sources of inspiration. The prefix “eco” has its origins in the Greek word “*oikos*” (translates as household), and is found in the words “ecology” and “economics”. The central theme in *econics* is the study and mimicry of self-ordering complex systems, specifically, biological dissipative structures and ecological processes affecting the life-cycle and deployment of resources.**

The most pressing issue facing humanity in the modern age is the impact globalized society is having on the environment and the ensuing loss of natural resources and ecosystem functionality. There is a very real urgency to try and minimise this degradation by promoting the transformation towards a sustainable society. At the heart of the objective of *econics* is the development of practices that take their references from the self-regulatory and energy-efficient processes in nature. It is the mimicking of natural function that underpins its fundamental principles. Much of the investigative research and development of solutions to real world problems relating to *econics* adopts an inter and transdisciplinary approach to the study of structures and processes in natural complex ecosystems with the aim of deriving management solutions for effective sustainable development under global change.

The *econical* principles are derived from the integration of theories referring to systemics, evolution, thermodynamics, holarchy, panarchy, and ecosystems. The idea of *econics* was first introduced by Althaus in 2007 (*Ökonik*, in German) and elaborated as a concept for a *Radical Ecosystem Approach* to sustainable development by Ibisch and Hobson (Ibisch et al. 2010; Hobson & Ibisch 2010, 2012).

**Econics takes its lead from bionics in as much as it encourages scientists and practitioners to draw on nature for inspiration and for deriving appropriate models on which to construct a framework for sustainable existence. It also seeks innovative solutions to human-induced environmental problems.**

In the case of *econics*, problems are encountered at a system level and at much larger scales than in bionics – landscape and regional ecosystems. As its hypothesis *econics* states that natural ecosystems provide an essential template on which to model socio-economic systems. Within the wider context of complex systems analysis is the investigation of ecosystem efficiency, adaptive evolution and resilience, all of which are prerequisites to surviving environmental change.

*Econics* is a scientific paradigm, adopting collaborative approaches to resolving problems of a society, which is developing under global change and conceptually decoupling from nature. In its portfolio it includes established practices such as recycling or adaptive management;

approaches used in industrial ecology; and theories of close-to-nature forestry.

In the analysis of cultural landscapes and socio-economic problems *economics* applies principles of *ecosystem theory*, specifically *non-equilibrium thermodynamics*, in the understanding that the use and storage of energy are fundamental processes governing all systems. Another example would be the application of principles of *complex systems theory* to inform practices in the planning and management of socio-economic systems at all levels and in the face of climate change. Adaptive management is central to this approach and integrates all forms of sustainability-relevant *non-knowledge*. For example, it embraces indeterminacy, uncertainty and risks in the formulation of sustainability strategies. Ecosystems also provide *economical* lessons for human knowledge management.



**Below are examples of the kinds of questions asked in the study of “Economics” :**

- *Can we find templates for sustainability in nature?*
- *Which particular structures and feedback processes observed in nature help us to understand better the role they play in*

*maintaining the functional efficiency of natural ecosystems?*

- *Are there observable indicators in nature that help us to understand better the forces and responses to human-induced change?*
- *What proxy indicators are there in nature that might provide science with the opportunity to investigate more effectively the development of resilience in ecosystems against human-induced disturbances?*
- *What structures and processes exist in nature that contribute to ecosystem adaptation under unpredictable conditions of change?*
- *Are there measures or indicators of the “trade-offs” between functional efficiency and resilience occurring in natural ecosystems that help us to better understand the development of sustainable systems?*
- *What are the differences between ecosystems and socio-economic systems and how should they be considered when transferring strategies and mechanisms from one to the other?*
- *Are there a set of simple “ecological laws” underlying the complexity found in nature that can be mimicked effectively in the development of sustainable socio-economic systems?*
- *Is it possible to develop effective measures of the condition and performance of cultural systems that have bearing on the resilience of ‘the wider ecosystem’?*
- *What can be learnt from nature about system responses to uncertainty and indeterministic drivers of change?*
- *What kind of implications does economical science have for epistemology, theory of science and also (environmental) ethics?*

## Workshop objectives and structure

The proposal is for a two-day seminar to be held at Eberswalde University for Sustainable Development and the Technical University Berlin, Germany. Two days of excursions to rural and urban demonstration sites complement the programme.



### Structure

**Day 1** Arrival and excursion to Schorfheide  
Chorin Biosphere Reserve

**Day 2** Seminar in Eberswalde

**Day 3** Seminar in Berlin

**Day 4** Excursion in Berlin and leave

### Session themes include:

- Theory and philosophy of “economics”
- Economics and bionics
- Economics and the theory of sustainable development
- Economics and land use practices
- Economics and society

### References

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*The objectives of the workshop are:*

- To provide an opportunity for selected individuals and organisations to share science and practice in the broad field of econics.
- To promote the science of *econics* in both academia and practice through the publication of a book and further peer-reviewed papers under joint authorship.
- To explore the opportunities for developing a framework for future collaboration in both research and sponsored sector-related activities.



*Venue: Eberswalde University for Sustainable Development and Technical University of Berlin, Eberswalde and Berlin, Germany*

*Date: 17-20 September 2014*