

Jan Evangelista Purkyně University in Ústí nad Labem

Faculty of Environment

Study material

APPLIED ECONOMICS AND ECOSYSTEM SERVICES

doc. Mgr. PhDr. Silvester van Koten, Ph.D.

Ing, Jan Macháč, Ph.D.

Ing. Jiří Louda, Ph.D.



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Objectives

Obtain and deepen knowledge and skills relating to economic aspects of environmental protection. Using economic approaches, describe interactions among economic science, environmental policy, natural ecosystem services, quality of life and economic policy recommendations. An emphasis will be on problems of applied economics, e.g., the non-existence of a market for ecosystem services, externalities, environmental degradation, consumer behaviour in relation to natural goods and services and insufficient motivation to protect the environment/ecosystem service provision. These problems will be explained primarily by means of basic economic concepts, microeconomics and experiments. Attention will be focused on both demand and supply associated with provision of each type of ecosystem service and with implementation of environmental protection measures, as well as economic aspects of environmental protection tools. Thus, the subject will deal not only with valuation of ecosystems and services they provide, but also with economic assessment of landscape, society-wide benefits of implementation of nature-based measures and preferences. An emphasis will be on positive and negative motivation tools in the area of environmental protection and ecosystem management, possibilities for negotiation and alternative financing tools, in the form of payments for ecosystem services. As part of environmental protection, we will introduce the concept of regulatory impact assessment (RIA) in connection to environmental impacts and the related concept of regulatory proportionality.

Study topics

1. Basic economic theories: utility, demand and supply;
2. Relationship between economics and the environment, basic economic approaches to the environment (neoclassical environmental economics, ecological economics, institutional approaches, market approaches, etc.);
3. Environmental protection policy tools;
4. Ecosystem service concept (regulating, provisional and cultural services), different approaches to their classification and valuation;
5. Innovative and alternative tools (payments for ecosystem services);
6. Valuation of ecosystem services, component methods (willingness to pay/accept compensation, market prices, hedonic pricing, choice experiment, etc.);
7. Application of experiments and games in applied economics in the environmental area (flood management, forestry, etc.);
8. Cost-benefit analysis (CBA);
9. Regulatory impact analysis in the environmental area.

Study literature

Mandatory literature

SLAVÍKOVÁ, L., VEJCHODSKÁ, E., SLAVÍK, J. a kol. *Ekonomie životního prostředí – teorie a politika*. Praha: Alfa Nakladatelství. 2012. ISBN 978-80-87197-45-5.

PERMAN, R., MA, Y., MCGILVRAY, J., COMMON, M. *Natural Resource and Environmental Economics*. Pearson – Addison Wesley, 2003 (vybrané kapitoly)

MACHÁČ, J., DUBOVÁ, L., LOUDA, J., HEKRLÉ, M., ZAŇKOVÁ, L., BRABEC, J. *Methodology for Economic Assessment of Green and Blue Infrastructure in Human Settlements*. Ústí nad Labem: Institute for Economic and Environmental Policy (IEEP), 2019.

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CONSTANZA, R. D'ARGE, R. DE GROOT, R., FARBER, S. GRASSO, M. HANNON, B., LIMBURG, K., NAEEM, S., O'NEIL, R. PARUELO, J. RASKIN, R., SUTTON, P., VAN DEN BELT, M. *The value of the world's ecosystem services and natural capital*. *Nature* 387:253-260. 2017.

BATEMAN, I.J., HARWOOD, A.R., MACE, G.M., WATSON, R.T., ABSON, D.J., ANDREWS, B.; BINNER, A., CROWE, A., DAY, B.H., DUGDALE, S., et al. *Bringing Ecosystem Services into Economic Decision-Making: Land Use in the United Kingdom*. *Science* 341, 45–50. 2013

BRAAT, L. C., DE GROOT, R. *The ecosystem services agenda: bridging the worlds of natural science and economics, conservation and development, and public and private policy*. *Ecosystem Services*, 1(1): 4-15. 2012.

WUNDER, S. *Payments for environmental services: Some nuts and bolts*. CIFOR Occasional Paper, (42). 2005.

Recommended literature

BALMFORD, A., BRUNER, A., COOPER, P., COSTANZA, R., FARBER, S., GREEN, R.E., JENKINS, M., et al. *Economic Reasons for Conserving Wild Nature*. *Science*, 297(5583): 950-953. 2002.

CAPISTRANO, D. (Ed.). *Ecosystems and human well-being: multiscale assessments: findings of the Sub-global Assessments Working Group of the Millennium Ecosystem Assessment*. Washington: Island Press, ISBN 1-55963-185-6. 2005.

DE GROOT, R.S., ALKEMADE, R., BRAAT, L., HEIN, L., WILLEMEN, L. *Challenges in integrating the concept of ecosystem services and values in landscape planning, management and decision making*. *Ecological Complexity* 7:260-272. 2010.

LOUDA, J., VOJÁČEK, O., SLAVÍKOVÁ, L. *Achieving Robust and Socially Acceptable Environmental Policy Recommendations: Lessons from Combining the Choice Experiment*

Method and Institutional Analysis Focused on Cultural Ecosystem Services. *Forests* 12(4): 484. 2021

LIENHOOP, N. SCHRÖTER-SCHLAACK, C. Involving multiple actors in ecosystem service governance: Exploring the role of stated preference valuation. *Ecosystem services* 34: 181-188. 2018.

DE GROOT, R. Function-analysis and valuation as a tool to assess land use conflicts in planning for sustainable, multi-functional landscapes. *Landscape and urban planning* 75(3-4): 175-186. 2006.

COSTANZA, R., DE GROOT, R., SUTTON, P., VAN DER PLOEG, S., ANDERSON, S.J., KUBISZEWSKI, I., FARBER, S., TURNER, R.K., 2014. Changes in the global value of ecosystem services. *Global environmental change* 26:152-158. 2014

GÓMEZ-BAGGETHUN, E., DE GROOT, R., LOMAS, P. L., MONTES, C. The history of ecosystem services in economic theory and practice: From early notions to markets and payment schemes. *Ecological Economics*, 69. 2009.

ENGEL, S., PAGIOLA, S., WUNDER, S. Designing payments for environmental services in theory and practice: An overview of the issues. *Ecological Economics*, 65, 663-673. DOI: 10.1016/j.ecolecon.2008.03.011. 2008