

Course title Ecological Economics				
Course code: MPE 125	No. of credits 3	L-T-P distribution 24-18-0	Learning hours 42	
Pre-requisite course code and title (if any) none				
Course type elective		Department Policy Studies		
Course coordinator (s) Nandan Nawn		Course instructor (s) Nandan Nawn		
Contact details nandan.nawn@teriuniversity.ac.in				
Course offered in semester 2 and 4 (even)				
Course description				
<p>This course offers an introduction to the field of ecological economics. Ecological economics goes beyond environmental economics by combining ecological, social and economic knowledge in an integrated way. It has been called the “science of sustainability”. Instead of resorting to a single unit of account – money – ecological economics uses a variety of indicators and includes the biophysical structure of economic processes. Its approach is fundamentally social-metabolic, meaning that the economy is seen as an open system – open to the entry of energy and materials and to the exit of wastes and emissions. Social-metabolic processes take place in a state of permanent non-equilibrium: energy and materials continuously flow throughout the economy. The economy is thus considered a subsystem of society (i.e. of the cultural, institutional and power structures), itself a subsystem of a larger finite global ecosystem, the Biosphere. In this course, the core concepts of ecological economics are approached both qualitatively and quantitatively, and with special reference to the Indian context.</p>				
Course objectives				
<ol style="list-style-type: none"> 1. To cover the key specific concepts of ecological economics. 2. To illustrate how these concepts can be applied to the Indian context. 3. To sharpen the students’ view on the sustainability of the economy, locally as well as globally. 				
Course content				
Module 1: Introduction			L	T
<ul style="list-style-type: none"> - What is ecological economics? - Some history: context and main precursors - The “virtual”, “real” and “real-real” levels of the economy 			2	
Module 2: Epistemological and methodological basis			2	
<ul style="list-style-type: none"> - The open-systems approach - Co-evolution and resilience as two key notions - Complexity, uncertainty and urgency: ecological economics as a post-normal science 				
Module 3: A metabolic view of the economy			4	2
<ul style="list-style-type: none"> - Differentiating “natural resources”: stock/flows and funds/services - The notion of social metabolism and its significance - “Mimicking” ecosystems: agroecology and industrial ecology - The example of the Indian economy 				
Module 4: Society and institutions			4	4
<ul style="list-style-type: none"> - Differentiating social groups and their impacts and knowledge - The debates around the notion of needs - The social nature of technology - The various property/possession-based regimes and their implications 				
Module 5: Social costs and valuation			4	4
<ul style="list-style-type: none"> - Social and environmental costs (externalities) - Weak versus strong sustainability - The valuation of the environment: the comparison of cost/benefit analyses and multi-criteria analyses - Payments for ecosystem services 				
Module 6: Ecological macroeconomics			4	4
<ul style="list-style-type: none"> - World-system theory and the current social-metabolic “Great Transformation” 				

<ul style="list-style-type: none"> - International trade from a biophysical perspective: global metabolism, ecologically unequal exchange, and the “ecological debt” - Basics of economic growth (including the role of the credit system) and macroeconomic accounting - The critique of conventional growth: “green growth” and “prosperity without growth” <p>Module 7: The policies and politics of ecological economics</p> <ul style="list-style-type: none"> - From above: regulating the economy for sustainability - From below: ecological distribution conflicts and environmental justice - Towards a sustainable India <p style="text-align: right;">Total:</p>	4	4
<p>Evaluation criteria</p> <p>The course evaluates students on three grounds:</p> <ul style="list-style-type: none"> – Presentation of two (seminal) articles: 30%. – One assignment: 30%. Students will be asked to write a short essay (maximum 1500 words) on a given issue. – Final written exam: 40%. 		
<p>Learning outcomes</p> <p>By the end of the course, students will:</p> <ul style="list-style-type: none"> – command a critical understanding of the key concepts of ecological economics, with special reference to India. – be able to apply them in their own study of the sustainability of the economy, locally as well as globally. 		
<p>Pedagogical approach</p> <ul style="list-style-type: none"> – the course doesn’t focus on new mathematical tools – the course critically investigates the notions of “sustainability”, “the economy”, “economics” – key importance of class interactions and discussions 		
<p>Materials</p> <p>Optional textbook: Healy, H., J. Martínez-Alier, L. Temper, M. Walter and J.-F. Gerber (eds) (2012) <i>Ecological economics from the ground up</i>. London: Routledge.</p> <p>Reading materials: The seven articles with an asterisk (*) are overview articles that are essential readings for the course. Additional literature can be obtained upon request. The references listed here are available in the PDF reader. I also added a brief comment for each reference.</p> <p>Module 1: Georgescu-Roegen, N. (1975) Energy and economic myths. <i>Southern Economic Journal</i> 41(3): 347-381. [Classic article by the main father of ecological economics; excellent entry point into his writings] *Martínez-Alier, J. (2014) Ecological economics. In: N. Smelser & P. Baltes (eds) <i>International encyclopedia of the social and behavioral sciences</i>. London: Pergamon. [Overview of the approach taken in this course] Sneddon, C., R. Howarth & R. Norgaard (2006) Sustainable development in a post-Brundtland world. <i>Ecological Economics</i> 57: 253-268. [A valuable discussion of the present situation of “sustainable development”, by leading ecological economists]</p> <p>Module 2: Funtowicz, S. & J. Ravetz (1994) The worth of a songbird: Ecological economics as a post-normal science. <i>Ecological Economics</i> 10: 197-207. [Classic paper by the two founders of the influential “post-normal science” framework] Holling, C.S. (2001) Understanding the complexity of economic, ecological, and social systems. <i>Ecosystems</i> 4: 390-405. [Overview article on complexity and resilience, by a founder of ecological economics] *Kapp, K.W. (1976) The open-system character of the economy and its implications. In: K. Dopfer (ed.) <i>Economics in the future</i>, pp. 90-105. London: Macmillan. [Short introduction to the open system, a fundamental feature of ecological economics, by one of the most influential eco-institutional economists of the 20th century]</p> <p>Module 3: De Schutter, O. (2011) Agroecology and the right to food, Report presented at the 16th Session of the United Nations</p>		

Human Rights Council, Geneva, 8 March 2011. [Influential report by the UN Special Rapporteur on the Right to Food]

Ramaswamy, R. & S. Erkman (2006) Industrial ecology: A new planning platform for developing countries. In: K. Green & S. Randles (eds) *Industrial ecology and spaces of innovation*, pp. 106-128. Cheltenham: Edward Elgar. [Ramaswamy was arguably India's leading industrial ecologist]

*Singh, S., F. Krausmann, S. Gingrich, H. Haberl, K.-H. Erb, P. Lanz, J. Martínez-Alier & L. Temper (2012) India's biophysical economy, 1961-2008: Sustainability in a national and global context. *Ecological Economics* 76: 60-69. [Pioneering study of the Indian metabolism]

Module 4:

*Hoffmann, S. (2013) Property, possession and natural resource management: Towards a conceptual clarification. *Journal of Institutional Economics* 9(1): 39-60. [Excellent overview on the distinction between possession and property as applied to natural resource management]

Jackson, T., W. Jäger & S. Stagl (2004) Beyond insatiability – Needs theory, consumption and sustainability. In: L. Reisch & I. Ropke (eds) *The ecological economics of consumption*, pp. 79-110. Cheltenham: Edward Elgar. [Overview of the topic and its implications – a lot of food for thought]

Reddy, A. (2009) The shaping of science and technology in developing countries. In: R. Rajan (ed.) *Amulya Reddy: Citizen scientist*, pp. 67-97. New Delhi: Orient Blackswan. [Reddy was an iconic name in technology and eco-development]

Module 5:

Giampietro, M. & K. Mayumi (2012) New narratives for sustainability: The red pill for economists. In: J.-F. Gerber & R. Steppacher (eds) *Towards an integrated paradigm in heterodox economics*, pp. 176-189. Basingstoke: Palgrave-Macmillan. [A brief and provocative synthesis on energy, peak oil and climate change, by two prominent experts on the social metabolism; Mayumi received TERI's 2013 Georgescu-Roegen Awards]

Lélé, S. & Srinivasan, V. (2013). Disaggregated economic impact analysis incorporating ecological and social trade-offs and techno-institutional context: A case from the Western Ghats of India. *Ecological Economics* 91: 98-112. [A Indian case study in multidimensional valuation]

*Martínez-Alier, J., G. Munda & J. O'Neill (1998) Weak comparability of values as a foundation for ecological economics. *Ecological Economics* 26: 277–286. [History of the concept of incommensurability, and basics of multi-criteria evaluation methods]

Modules 6:

[1] Costanza, R. et al. (2014) Time to leave GDP behind. *Nature* 505: 283-285. [2] Victor, P. (2011) Questioning economic growth. *Nature* 468: 370-371. [3] Latouche, S. (2004) Degrowth economics, *Le Monde Diplomatique*, November. [Two short *Nature* articles questioning GDP and growth, and one short article on “degrowth” for the global South]

Giljum, S. & N. Eisenmenger (2004) North-South trade and the distribution of environmental goods and burdens: A biophysical perspective. *Journal of Environment and Development* 13(1): 73-100. [Pioneering overview, with many important implications for a sustainable world economy]

*Haberl, H., M. Fischer-Kowalski, F. Krausmann, J. Martínez-Alier & V. Winiwarter (2011) A socio-metabolic transition towards sustainability? Challenges for another Great Transformation. *Sustainable Development* 19: 1-14. [The “big picture”, as provided by a cutting-edge team at the Institute of Social Ecology, Austria]

Module 7:

Agrawal, A. & M. Lemos (2007) A greener revolution in making? Environmental governance in the 21st century. *Environment* 49(5): 36-45. [Global overview of the current situation of “environmental governance”]

*Kothari, A. (2013) India 2100: Towards radical ecological democracy. *Future* 56: 62-72. [Some fresh ideas that go to the core]

Martínez-Alier, J., L. Temper & F. Demaria (2014) Social metabolism and environmental conflicts in India. *Indi@logs* 1: 51-83. [Introductory overview linking ecological economics and political ecology]

Course reviewers:

- Professor Joan Martínez-Alier, Institute of Environmental Sciences and Technology, Autonomous University of Barcelona, Spain
- Professor Kanchan Chopra, Department of Policy Studies, TERI University, New Delhi

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