

# Seminar “Sustainable Development, Consumption, Production and Climate Change”

“ Sustainable Development”- MIND - Course November 5 <sup>th</sup> - November 15 <sup>th</sup> 2013									
	05.11.13	06.11.13	07.11.13	08.11.13	11.11.13	12.11.13	13.11.13	14.11.13	15.11.13
10:00-12:30		Lecture 1+2 S420/15	Lecture 3+4 S420/15	Classroom Discussion S420/15	Lecture 5+6 S420/13	Lecture 7+8 S420/13	Classroom Discussion S420/13	Lecture 9+10 S420/13	Presentation of results S420/13
II: 16:00 - 18:00 I: 18:00 - 20:00			Thematic Workshop I Schader-Stiftung Goethestr. 2 64285 Darmstadt					Thematic Workshop II Schader-Stiftung Goethestr. 2 64285 Darmstadt	
18:00-19:30	Kick-Off-Event S105/122								

-  = Accessible to students and public: Kick-off event with representatives of TU Darmstadt policy, ministry, research, public etc.
-  = Accessible to students and public: Workshops from external experts to present and discuss environmental relevant topics
-  = Accessible to students: Lectures for students
-  = Accessible to students: Student’s classroom discussions and presentations
-  = Accessible to students: Presentation of results

The students get familiar with current and relevant problems and research topics regarding environmental sciences. They are enabled to present their work results in an appropriate manner and capable of coping with scientific problems and resolving different solution strategies autonomously.

	Date	Theme
1	05.11.2013	<b><u>Kick-Off-Event</u></b>
2	06.11.2013	<p><b><u>Lecture 1: Introduction to SD and Sustainomics Framework</u></b> Getting acquainted, introduction to the course, description of specific modules and topics, course requirements, performance criteria, term paper topics, etc. Sustainable development challenges, worldwide status and basic facts, future global scenarios Relevance of Agenda 21, millennium development goals, WSSD targets, etc. Globalization: internationalization of goods, capital and labour markets Basic SD concepts: Bruntland report, other definitions, criticisms and practical problems Sustainomics framework for making development more sustainable: core principles, transdisciplinary approach, analytical methods and decision criteria.</p> <p>Economic, social and environmental dimensions of SD, and various definitions of sustainability (Hicks-Lindahl, resilience-vulnerability, etc.).</p> <p><b><u>Lecture 2: Analytical Tools and Methods 1</u></b> Key concepts: poverty, equity, economic efficiency, sustainability of growth. Multiple indicators of SD Practical case studies illustrating how to improve the sustainability of growth, at the global, trans-national, national, sub-national, local and project levels. Integrating economic, social and environmental approaches Optimality and optimization models, Durability models Action impact matrix (AIM) Macroeconomic policies and the environment, Macro-models Green national income accounting, SEEA, real savings Sustainable development assessment and evaluation</p>

3	07.11.2013	<p><b><u>Lecture 3: Analytical Tools and Methods 2</u></b> Analytical methods used in economics: cost-benefit analysis, multi-criteria analysis, decision rules Issues-policy transformation mapping (ITM) Economic valuation of environmental and social impacts, internalizing externalities Role of markets and shadow prices Applications at the local, sectorial and macroeconomic levels Typical environmental assessment (EA) procedures CASE STUDY: SD assessment of a tropical rainforest in Madagascar</p> <p><b><u>Lecture 4: Climate Change</u></b> Challenges, worldwide status, concepts, definitions, models and analytical methods. Key scientific issues and options, Circular linkages between climate change and sustainable development Vulnerability, impacts, adaptation, and adaptive capacity; Mitigation and mitigative capacity Reconciling the right to SD and need for CC responses - global negotiations and bargaining strategies Kyoto protocol and post-Kyoto issues – Clean Dev. Mech. (CDM), Joint Implementation (JI), emissions trading Practical Application - Integrating SD policies and CC response strategies at the national level Action Impact Matrix (AIM) applied to adaptation and mitigation</p> <p><b><u>Thematic Workshop I</u></b> Main topic: Energy</p>
4	08.11.2013	<b>General classroom discussions, questions and answers. Relevant presentations by Darmstadt researchers.</b>
5	11.11.2013	<p><b><u>Lecture 5 and 6: Sustainable Consumption and Production (SCP), Millennium Consumption Goals (MCG), Business Sustainability</u></b> Global resource constraints, crowding out the poor, IPAT Sustainable consumption and production, sustainable lifestyles, virtuous cycle Millennium consumption goals Policy analysis and tools, pricing, labeling, advertising, value/supply chain analysis, etc. Business sustainability principles Sustainability accounting and reporting, shared value concept Country business environment, macroeconomic policies, trade, etc.</p>
6	12.11.2013	<p><b><u>Lecture 7: Sustainable Energy Development (SED)</u></b> Sustainable energy development (SED): challenges, worldwide status and facts, concepts, and definitions. Commercial energy – electricity, oil, gas and coal Traditional fuels and renewables – fuelwood, biomass, solar, small hydro, wind, etc. Integrated national energy planning (INEP) framework and analytical methods Applications at the local, sectorial and macroeconomic levels CASE STUDY: Integrated national energy planning and pricing policy in several countries CASE STUDY: SED analysis of small hydro in Sri Lanka Energy sector multi stakeholder processes and participation, reform and restructuring Energy policy instruments: sustainable pricing, demand management and conservation, command and control</p> <p><b><u>Lecture 8: Agriculture and Water Resources</u></b> Global status of water resources, agriculture and food security Climate vulnerability, impacts and adaptation in developing countries Action Impact Matrix (AIM) applied to prioritize vulnerabilities in Sri Lanka CASE STUDY: Vulnerability of agriculture and water resources to climate change in Asia – focus on Sri Lanka</p>
7	13.11.2013	<b>General classroom discussions, questions and answers. Relevant presentations by Darmstadt researchers.</b>
8	14.11.2013	<p><b><u>Lecture 9: Sustainable Hazard Reduction and Disaster Management (SHARM)</u></b> Sustainable Hazard Reduction and Disaster Management (SHARM) Methodology CASE STUDY: Application of SHARM to the 2004 Asian Tsunami</p> <p><b><u>Lecture 10: Wrap-up Session &amp; Preparation of Applications Papers</u></b></p>

		<p>Review of the course, questions and discussion Determining priority issues and formulating problems Building trans-disciplinary teams Identifying data and applying relevant analytical tools Determining policy options</p> <p>Presenting results to decision makers</p> <p><b><u>Thematic Workshop II</u></b></p> <p>Main topic: Sustainability in education</p>
9	15.12.2013	<b>Presentation of their results by student teams</b>

## Literature

Main text: *Making Development More Sustainable: Sustainomics Framework and Practical Applications* by Mohan Munasinghe (Second Edition, MIND Press, Munasinghe Institute for Development, Colombo, 2010) will be provided to all participants – see attachment below. Other materials include readings from two additional text books (“Climate Change and Sustainable Development” and “Aftermath of the Asian Tsunami”), modularized slides, DVDs, and other handouts.