

# MuSIASEM TRAINING AND DISCUSSION SESSIONS

8–10 SEPTEMBER 2014

Sala de Conferències (groundfloor)  
[Escola d'Enginyeria de Terrassa](#)  
Universitat Politècnica de Catalunya – BarcelonaTech

## ~ PROGRAM ~

Organized by Asociación Científica LIPHE4



*in collaboration with*

the Integrated Assessment: Sociology, Technology and the Environment (IASTE) Research Group of the Institut de Ciència i Tecnologia Ambientals (ICTA), Universitat Autònoma de Barcelona (UAB)

*and*

the Sustainability Measurement and Modeling Lab (SUMMLAB) and the UNESCO Chair in Sustainability, of the Universitat Politècnica de Catalunya (UPC)

*Event open to the public*

*For registration and more information, contact Sandra Bukkens: [bukkens@liphe4.org](mailto:bukkens@liphe4.org)*

## DAY 1: Monday 8 September 2014

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### 09:00–09:30 Welcome Session

- Presentation of resource persons and participants.
- Overview of scope and structure of seminar days.

### 09:30–10:15 Session 1A: Time for something new in sustainability science (M. Giampietro)

- The narrative of perpetual growth behind politically correct economic analysis and policies. Implications of using analyses based on monetary evaluation when operating in a “Ponzi-scheme economy”.
- Do we have better narratives?
- Implications of accepting the existence of limits to perpetual growth.

### 10:15–11:00 Session 1B: Epistemological Therapy (M. Giampietro)

- All models are wrong, some are useful.
- Examples of epistemological blunders inherent in popular indicators (energy intensity, ecological footprint).
- Epistemological challenges of generating quantitative characterizations of complex issues.
- The importance of addressing multiple scales and dimensions.
- Exposing the *capital sin* (systemic error) of quantitative analysis in sustainability science.

### 11:00–11:30 Break

### 11:30–13:00 Session 1C: General overview of MuSIASEM (M. Giampietro)

- Aim of the approach (addressing multiple scales and dimensions).
- The basic steps of MuSIASEM.
- On funds and flows: the underlying flow-fund model of Georgescu-Roegen.

### 13:00–14:30 Lunch break

### 14:30–17:00 Project presentations and conceptual framework

- Overview of selected projects for further in depth discussion. Focus question: How can MuSIASEM be applied to these projects? (M. Rosas-Casals)
  - Tourism and climate change in mountain regions
  - Energy poverty and security
  - Sustainability in urban contexts
  - Integrated water cycle and ecosystem services
- Sustainable conceptual frameworks. (A. Calleros, N. Kaplun)

## DAY 2: Tuesday 9 September 2014

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09:00–10:15 *Session 2A: Conceptual building blocks of MuSIASEM (Mario Giampietro)*

- The concept of grammars.
- Mosaic effect generate by dendrograms (examples).
- Impredicative loop analysis (examples).
- Sudoku effect (keeping coherence across dimensions and scales).

10:15–11:00 *Session 2B: Energy grammar (François Diaz Maurin)*

- Overview of the energy grammar.
- Energy accounting: the pitfalls in using energy statistics.
- Practical examples.
- Questions & discussion.

### **11:00–11:30 Break**

11:30–12:15 *Session 2C: Case study: The energy sector of Ecuador (François Diaz Maurin & Alevgul Sorman)*

- Illustration of how to apply the energy grammar.
- Illustration of databases used.
- The energy sector in a larger socioeconomic and ecological context.
- Questions & discussion.

12:15–13:00 *Session 2D: Food grammar (Mario Giampietro)*

- Overview of food grammar.
- Crunching numbers: pitfalls in using food production and consumption statistics.
- Practical application (Ecuador & Mauritius).
- Questions & discussion.

### **13:00–14:30 Lunch break**

14:30–17:00 *Discussion Session: Applications of MuSIASEM*

- Tourism and climate change in mountain regions
- Energy poverty and security

## DAY 3: Wednesday 10 September 2014

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09:00–09:45 *Session 3A: Water grammar (Cristina Madrid)*

- Water: fund or flow?
- Overview of water grammar.
- Crunching numbers: water statistics.
- Practical examples.
- Questions & discussion.

09:45–10:30 *Session 3B: External constraints, environmental loading and stability of boundary conditions (Pedro Lomas)*

- The metabolic pattern of ecosystems as defined in theoretical ecology.
- The interference in ecosystem metabolism by human activity.
- Bridging the analysis of societal and ecosystem metabolism.
- Questions and discussion.

10:30–11:00 *Session 3C: Use of GIS in MuSIASEM (Tarik Tovar Serrano)*

- Importance of land-use data in MuSIASEM.
- Practical examples related to food production and water metabolism (from Mauritius case study).
- Questions and discussion.

### **11:00–11:30 Break**

11:30–12:15 *Session 3D: Case study: Indian region of Punjab (Cristina Madrid)*

- Application of water grammar.
- Environmental loading.
- Socio-economic factors.
- Questions & discussion.

12:15–13:00 *Session 3E: Other applications of MuSIASEM (Mario Giampietro)*

- Degrowth: Will we have to work more or less?.
- Household, urban and rural metabolism.
- The agro-biofuel delusion (Brazil).
- Questions & discussion.

### **13:00–14:30 Lunch break**

14:30–17:00 *Discussion Session: Applications of MuSIASEM*

- Sustainability in urban contexts
  - Habitability and happiness
  - Infrastructures and its impacts
  - Waste management
- Integrated water cycle and ecosystem services