

Curriculum Vitae (June 2009)

Personal Data

Full name: **Mario GIAMPIETRO**

Date of birth: 24 September 1953

Place of birth: Rome, Italy

Nationality: Italian

Civil status: Married, two children.

Present position:

ICREA Research Professor at the Institute of Environmental Science and Technology (ICTA)

Universitat Autònoma Barcelona, Bellaterra SPAIN

E-mail: giampietro@liphe4.org , Mario.Giampietro@uab.cat,

Education

Wageningen University, Communication and Innovation Studies, Wageningen, the Netherlands (October 2003):

Ph.D. in Social Sciences. Thesis: Complex systems theory applied to the analysis of sustainability of agriculture: developing innovative tools and procedures for bridging social, economic and ecological analyses.

CEFAS, Viterbo, in collaboration with the Università La Tuscia, Viterbo & Università Cattolica di Piacenza, Italy (October 1981-June 1982):

Master of Science degree in Food System Economics (1-year program), 30/30.

Università La Sapienza, Rome, Italy (November 1978-July 1981):

Degree (“laurea”) in Biological Sciences (4-year program), 110/110 with honors.

Università La Sapienza, Rome, Italy (October 1972-November 1978):

Degree (“laurea”) in Chemical Engineering (5-year program), 110/110.

Istituto Massimiliano Massimo, Roma (October 1967-July 1972)

Maturità Classica (high school diploma), 60/60

Languages

Italian	<i>mother tongue</i>		
	<i>Reading</i>	<i>Writing</i>	<i>Speaking</i>
English	excellent	excellent	excellent
Spanish	excellent	reasonable	good
French	excellent	good	good
Portuguese	excellent	poor	reasonable

Past Employment

Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione (INRAN), Rome, Italy (January 1993–June 2007):

Senior researcher, Unit of Technological Assessment and Food Technology. Director of the unit from May 1st, 2003 to April, 19th, 2005 (then suspended for sabbatical leave)

INRAN (then Istituto Nazionale della Nutrizione, INN), Rome, Italy (November 1985–December 1992):

Researcher, Unit of Technological Assessment and Food Technology.

Business and Research Consultancy, s.r.l., Rome, Italy (April–October 1985):

Contracted by the Italian government to assess agroindustrial development projects in areas of southern Italy affected by earthquake.

Centro Formazione Assistenza allo Sviluppo, Viterbo, Italy (September 1983–June 1984):

Coordinator of post-graduate course in Food and Agricultural Systems for Latin-American students.

Istituto Italo Africano, Rome, Italy (July–September 1983):

Contracted by the Department of Development and Cooperation of the Italian Foreign Ministry to define appropriate technologies for rural societies in Sub-Saharan Africa.

Centro Studi Investimenti Sociali (CENSIS), Rome, Italy (September 82–May 1983):

Responsible of a study dealing with the problems encountered when transferring scientific findings to agricultural producers.

GEPI (state-owned financing corporation), Rome, Italy (July 1981–September 1983):

Member of task force for the characterization and implementation of agroindustrial projects in developing areas of Italy.

Ministry of Defense (1983/1984 and 1990):

Officer of the Technical Services of the Italian Army (15 months military service as Lieutenant Junior and Lieutenant in 1983/1984; promoted to Captain during 2-month recall in 1990).

Professional Experience Abroad

The Arizona State University, Department of Geography, Tempe AZ, USA
August 2006 June 2007

Visiting Scholar. Invited by Prof. R. Aspinall – Director of the Dept. of Geography – Application to land use analysis of the MSIASEM approach.

The Pennsylvania State University (Penn State), University Park, PA, USA
January 2005 July 2006

Visiting Scholar. Invited by Prof. W. E. Easterling – Director of the Penn Institutes for the Environment - Building on the experience of sub-global assessments carried out within the Millennium Ecosystem Assessment Initiative, for the development of a tool kit of Multi-Scale Integrated Analysis for use in participatory integrated assessments.

The University of Wisconsin, Madison, WI, USA - February 2002 June 2002

Visiting Research Scholar. Working on the organization of a new Master of Science program in Agroecology, in collaboration with Professor T.F.H. Allen. Activities included co-organization and teaching of graduate courses.

Universitat Autònoma de Barcelona, Barcelona, Spain - September 1998 September 2000

Visiting Professor at the Doctorate of Environmental Sciences (Department of Economic History). Working on the concept of societal metabolism (two special issues of the International Journal Population and Environment present the work done at the UAB, with local students and professors) and teaching (“Sustainability Indicators”, “Foundations of Ecological Economics”, “Introduction to Environmental Sciences”).

Joint Research Center of the European Commission (JRC), Ispra (VA), Italy
December 1997 June 1998

Visiting Fellow, Institute for Systems, Informatics and Safety. Joint research program with Dr. Silvio Funtowicz on “Complex systems theory and implications for decision making.”

Wageningen Agricultural University (WAU), Wageningen, the Netherlands
Three periods: March April 1997, June August 1997, July 1998

Visiting Fellow, Department of Animal Production Systems. Review of WAU’s teaching material with regard to applying elements of complex systems theory to farming systems analysis.

Cornell University, Ithaca, NY, USA - February 1992 February 1995

Visiting Scholar (NATO Advanced Fellowship Program Grant) (19921994) and Visiting Associate Professor (19941995), College of Agriculture and Life Sciences. Research program: “Exploring the link between population, natural resources, technology,

standard of living and sustainability” - with Prof. David Pimentel.

Cornell University, Ithaca, NY, USA - February 1987August 1989

Visiting Fellow (Italian National Council of Research). Program: “New indicators assessing the efficiency of different agroecosystems” - with Prof. David Pimentel.

Principal Research Lines

(1985- 1989) – at Cornell University with David Pimentel - I worked on integrated assessment of sustainability (ecological energetics of agriculture, the interfacing of economic, social and biophysical analysis, nutrition, land use, time-use). In 1987 I took part, in Barcelona, to the conference in which it was decided to establish the International Society for Ecological Economics (officially established in Washington in 1990).

(1990 -1994) – In this phase I was fully immersed in the exploration of the set of analytical approaches adopted and/or proposed within the Ecological Economics community. In relation to the economic approaches I focused on a critical appraisal of the conventional applications and concepts of Environmental Economics to the field of sustainability (Contingent Valuation Methods, Weak Sustainability indicators, assessment of externalities and other approaches having the goal of making “prices right”). On the biophysical side, I got involved in the debate over how to establish a bridge between economic and ecological reading. In particular I have been working on: (i) Conventional Energy Analysis; (ii) Exergy analysis; (iii) Embodied land demand such as ghost land, environmental space/eco-capacity, ecological footprint; (iv) EMergy analysis; (v) Human Appropriation of Net Primary Productivity; (vi) Network Analysis; (vii) applications of non-equilibrium thermodynamics and the Bio-economics approach proposed by Georgescu-Roegen.

(1995 -2000) – In this period I visited those groups that, in my opinion, were “at the edge” in the development of innovative approaches: (i) participatory processes, and the related issue of how to guarantee quality control on the scientific process of integrated assessment (Silvio Funtowicz - Joint Research Center of the European Commission); (ii) permanent platform of negotiations among social actors about sustainability issues (Niels Röling - Wageningen University). (iii) Multi-Criteria Analysis applied to sustainability issues (Joan Martinez-Alier and Giuseppe Munda - Universitat Autònoma de Barcelona in Spain).

(2001-2005) – In these years, I developed the tool kit for Multi-Scale Integrated Analysis of Societal and Ecosystem Metabolism. This has required getting deeply into: (i) hierarchy theory (collaborating with Wisconsin-Madison, Tim Allen); and into the concept of (ii) Societal Metabolism (collaborating with Faculty for Interdisciplinary Studies of the University of Klagenfurt-IFF; the group led by Marina Fischer-Kowalski). Briefly, MSIASEM integrates biophysical, economic, social, demographic and land use analyses, making it possible to handle simultaneously non-equivalent descriptive domains, across different hierarchical levels and scales. The tool-kit and relative data base can be used for generating: (1) robust scenarios on the use of energy and other natural resources in the metabolism of modern economies and economies in transition, based on a multi-scale analysis of current patterns of metabolism and a comparative analysis of changes over historic series; (2) procedures of participatory integrated assessment related to sustainable development. My sabbatical at Penn State University was focussed on this second task with the agreement of Walt Reid - Millennium Ecosystem Assessment (MEA) - and Bill Easterling - Penn State

Institutes of the Environment – working on the experience accumulated in the various Sub-Global Assessments of MEA.

National and International Research Programs

“Synergies in Multi-scale Inter-Linkages of Eco-social systems”, SMILE
(2008-2012)

European Project 7th framework programme Contract #217213. This project has the goal to apply and further develop the analytical tools studies in the DECOIN project to analyze trade-offs and synergies between different aspects of sustainable development. A number of cases study will be carried out to assess the validity of the tool-kit in different socio-economic, environmental and cultural contexts. The activity of the project will include the construction of different scenarios of future development paths characterized across scales and in relation to sustainability trade-offs.

“Development and comparison of sustainability indicators”, DECOIN
(2006-2008)

European Project 6th framework programme Contract #044428. This project has 3 objectives: (1) to evaluate the existing methods and analytical frameworks in order to assess the progress towards sustainable development; (2) to elaborate of forecasts and scenarios, and to identify of inter-relationships between selected unsustainable trends in the EU; and (3) to carry out a detailed analysis on the inter-relationships between selected unsustainable trends and to provide a tool for the analysis and for forecasting. (<http://www.decoin.eu/dev/>).

“Sustainability Strategy Thematic Network: Improvement of sustainability strategy elaboration for economic, environmental and social policy integration in Europe”
(2003-2006)

Member. This network established within the activities of the EU 5th framework programme, had as objective the use the diversity of scientific approaches to the problems of sustainability as a resource for improving the European sustainability strategy, in its further elaboration and implementation (<http://www.sustainability-strategy.net/index.php>).

Italian Ministry of Agriculture (MIPAF), a three-year project “GMOs in agriculture”
(2002-2005)

Responsible of the Work Package: “Improving the Quality of Scientific Information Used in the Debate over GMOs.” Participatory process to involve in different stages (i) only scientists with different backgrounds and perceptions; (ii) stakeholders; (iii) the Italian society at large by using the media. (<http://www.wp33ogm.org/>)

European Commission contract ICA4-1999-40004, SEA Trans: South East Asia in Transition. Social Transition, Environmental Impacts, and Policies for Sustainable Development
(2000-2003)

Responsible of the activities of INRAN that was one of the partners of the consortium. A comparison of the trajectories of development of 4 countries in South East Asia (Philippines, Thailand, Laos and Vietnam) in relation to different history, social and

political constraints, technology and biophysical constraints. My work-package was about: (1) developing a tool-kit of analysis for a Multicriteria Integrated characterization of changes; and (2) assisting the Asian partners (5 groups) in the application of such a tool-kit.

European Commission, Multiregional Operational Program (MOP): Activities for Sustaining and Developing Agriculture (1998–2001)

Contract through the Italian Ministry for Agricultural and Forest Policies: “Technological Choices in the Food System and the different dimensions of the concept of quality for food products.” Responsible of the work-package: “Multidimensional reading of technological changes in the Food System”

Project Diafanis, Autonomous Government of Catalonia and Spanish Ministry of Environment to UAB (1999-2000)

With Joan Martinez-Alier and Giuseppe Munda, coordinator of the project
Multi-Criteria comparison of possible development project in a natural park - Aiguestortes e Estany Sant Murici – in North Catalonia, a procedure of integrated assessment. The name (Diafanis) focuses on the crucial need of guaranteeing transparency in face of legitimate contrasting views, in order to preserve trust in the process of policy generation.

European Commission, Contract No. 13917-1998-05 F1EI ISP ES (1998)

Personal Contract (together with Dr. Giuseppe Munda).

Tool kit for valuation processes combining the NAIADE approach (analytical tool kit for studying social impact matrices) with the AMOEBA approach (analytical tool kit for characterizing multicriteria impact matrices).

European Commission, contract STD TS3 CT92 0065, “Impacts of agricultural intensification on resources use sustainability and food safety and measures for its solution in highly-populated subtropical rural areas in China” (1993–1997)

Coordinator of the Farming System Analysis group (as a sub-contractor of Padova University). The activities of this project led to 3 special issues of: (i) *Critical Reviews in Plant Sciences*, (ii) *Agriculture Ecosystems and Environment*, and (iii) *Ecology of Food and Nutrition* – containing 10 articles of my group.

Teaching

Università Torvergata, Rome, Italy 1995–2002

Contracted Professor in the Program of Nutrition and Applied Dietetics, teaching ‘Geography of Nutrition and Food Policy.’

The University of Wisconsin, Madison, WI, USA February 2002–June 2002

Co-organization and teaching of two graduate courses: ‘The state of the art in agroecology,’ in collaboration with Professor Bill Bland, and ‘The work of Robert Rosen,’ in collaboration with Professor Tim Allen.

Universitat Autònoma de Barcelona, Barcelona, Spain **September 1998****September 2000**

Visiting Professor, teaching two courses of the Ph.D. Program in Environmental Science (Ecological Economics), ‘Indicators of Sustainability’ and ‘Foundations of Ecological Economics,’ and one undergraduate course, ‘Introduction to Environmental Sciences.’

Within the ICTA-UAB program:

* *Tiziano Gomiero*, Ph.D. awarded 18 March, 2005. Thesis: Multi-Objective Integrated Representation: An Innovative Tool for Farming System Analysis.

* *Jesus Ramos-Martin*, Ph.D. awarded 31 October, 2005. Thesis: Complex Systems and Exosomatic Energy Metabolism of Human Societies.

Other PhD students: *Hadiye Alevgül Sorman; Eduardo Tarik Serrano Tovar; Talía Isadora Waldron Henríquez; Arnim Scheidel; Nancy Guadalupe Arizpe Ramos.*

Giuseppina Siciliano, Universita' Ca' Foscari Venezia, Universita' IUAV (International University in Advance Studies) di Venezia.

LIPHE4 Summer Schools **2004****present**

on Theory and Applications of Participatory Integrated Assessment of Sustainability.

Past editions:

* Deutchlandsberg, Austria, 20-27 August, 2004.

* CEMACAM Torre Guil, Sangonera la Verde, Murcia, Spain, 17-23 July, 2005

* CEMACAM Torre Guil, Sangonera la Verde, Murcia, Spain, 17-23 July, 2006.

* Mekong Institute, Khon Kaen, Thailand - Assessing sustainable development in the Greater Mekong sub-region” an APN CAPaBLE project – 27 May-1 June, 2007.

* ICTA- Universitat Autònoma Barcelona, Bellaterra (Barcelona), Spain, 14-18 July, 2008

Courses taught: (1) An overview of Integrated Assessment of Sustainability and its challenges; (2) Multi-Scale Integrated Analysis of Societal and Ecosystem Metabolism

Easy-Eco, EvAluation of SustainabilITy, European Conferences & Training Courses
<http://www.sustainability.at/easy/> **2004****present**

Responsible of the course: Data Analysis, aggregation and Valuation methods.

Working Groups, Committees, and Editorial and Advisory Boards

International Assessment of Agricultural Science and Technology for Development (IAASTD)
(2005-2007)

* Lead Author for Chapter 4 – on Drivers (Global Level).

United Nations, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile (20042005)

Member of the working group on “Sustainable Development: Epistemological Challenges to Science and Technology”

Millennium Ecosystem Assessment (20042005)

* **Chapter Review Editor** in relation to *Volume 4 – Multi-Scale Integrated Assessment* for the following chapters: Chap. 4 – The Multiscale Approach; Chap. 5 – Using Multiple Knowledge Systems: Benefits and Challenges; Chap. 6 – Assessment Process; Chap. 11 – Communities, Ecosystems and Livelihood

* **Organizer** of two panel sessions on “Participatory Integrated Assessment of Agro-ecosystem Performance on Multiple Scale” at the International Conference Bridging Scales and Epistemologies – *Linking Local Knowledge with Global Science in Multi-Scale Assessments – Alexandria, Egypt – March 17th-24th 2004*

European Society for Ecological Economics (19962003)

Elected member of the Management Committee

Agriculture, Ecosystems & Environment (Elsevier) - (1991present)

Member of the editorial advisory board

Environment, Development and Sustainability (Kluwer)- (1999present)

Member of the editorial advisory board

International Journal of Water (Inderscience) - (2000present)

Member of the editorial advisory board

Network for Ecosystem Sustainability and Health (NESH)- (1999present)

Member since foundation - (www.eco-logistics.com/nesh/)

WWF Italy - (2003present)

Member of the Scientific Advisory Board

University of Klagenfurt-, Virtual Collegium of Social Ecology - (2003present)

Member of the Scientific Advisory Board

Joint Research Center of the European Commission, Ispra, Italy – IPSC, Unit Knowledge Assessment Methodologies (2004present)

Senior Adviser to the virtual network of young practitioners working on Science and Society issues (<http://alba.jrc.it/science-society/index1.html>).

Initiatives and Organizational Skills

Biennial International Workshop on Advances in Energy Studies, in Porto Venere, Italy (1998present) – (www.chim.unisi.it/portovenere/portovenere/portovenere.html)

Co-founder and permanent member of the organizing committee.

The list of workshops includes: (1) ‘Energy flows in Ecology and Economy’ (1998), (2) ‘Exploring Supplies, Constraints and Strategies’ (2000), (3) ‘Reconsidering the Importance of Energy’ (2002), (4) ‘Ecology-Energy Issues in Latin America’ (2004, in Campinas, Brasil). Four books of proceedings have been published after these workshops. (5) ‘Perspectives on Energy Future’ (2006, back in Porto Venere). This book of proceedings is still in press.

Scientific Society LIPHE4 - (2004present) – (www.liphe4.org)

Co-founder and president

The scientific society LIPHE4 is a non-profit scientific association. Its aim is to develop and apply innovative approaches and analytical tools for sustainable human societies. It organizes each year, since its foundation in 2004, a summer school on the Theory and Applications of Participatory Integrated Assessment of Sustainability.

- ♣ Deutchlandsberg, Austria, 20-27 August, 2004.
- ♣ CEMACAM Torre Guil, Sangonera la Verde, Murcia, Spain, 17-23 July, 2005.
- ♣ CEMACAM Torre Guil, Sangonera la Verde, Murcia, Spain, 17-23 July, 2006.
- ♣ Mekong Institute, Khon Kaen, Thailand, 27 May-1 June, 2007.
- ♣ ICTA-UAB – Bellaterra (Barcelona), Spain, 14-18 July, 2008
- ♣ “Nicholas Georgescu-Roegen” Interdisciplinary Training Research Platform University of Timisoara — October 13th – 17th, 2008

European Commission, Environment and Climate program: Advanced Study Course "Decision tools and processes for integrate environmental assessment" - Universitat Autònoma Barcelona - (September 20 -October 1, 1999)

When visiting professor at UAB, involved in the organization of the event, and then as lecturer, and responsible of one of the working groups.

Conference of the Italian Academy of Sciences: The Italian Contribution toward the Realization of the “Earth Charter,” Rome, Italy (6 7 May, 1996)

Responsible for the scientific part of the organization and the editing and publication of the proceedings of the conference.

Workshop on Complexity and Decision Making, Cortina d'Ampezzo, Italy (2628 May 1996)

Organizer of the workshop sponsored by INRAN (then, Istituto Nazionale della Nutrizione, INN). This workshop was organized after the “Aspen workshops” model. Mixing together famous scientists, students and senior officers of UN agencies (16 participants all together), interacting for 3 days in an informal way (including walks in the mountains).

International Symposium on “Biodiversity in Agriculture For a Sustainable Future”, Beijing, PR China (1921 September, 1995)

Member of the Organizing Committee, in collaboration with the Beijing Agricultural University, and Padua University, Italy. It had more than 100 participants coming from more than 20 countries. A book of Proceedings was published in Chinese, whereas, selected contributions have been published on two special issues of: (i) Agriculture Ecosystem and Environment; and (ii) Ecology of Food and Nutrition.

Relevant Publications (1990 onwards)

Books as author or co-authored (3)

Giampietro M. 2003. *Multi-Scale Integrated Analysis of Agro-ecosystems*. CRC Press, Boca Raton, 472 pp.

Polimeni, J., Mayumi, K., Giampietro, M., and Alcott, B. 2008 *Jevons' Paradox: the Myth of Resource Efficiency Improvements* Earthscan Research Edition, London, 192 pp.

Giampietro, M., and Mayumi, K.,. 2009 *The Biofuel Delusion: the Fallacy behind large-scale Agro-biofuels production* Earthscan Research Edition, London, 320 pp.

Books of Proceedings as editor (4)

Giampietro, M., Grandolini, A., Pastore, G., Przewozny, B.J. and Scarascia-Mugnozza, G.T. (Editors) 1998. *The 50th Anniversary of the United Nations and the Italian Contribution Toward the Realization of the "Earth Charter,"* Scritti e Documenti Vol. XXI. Accademia Nazionale delle Scienze (detta dei XL), Rome, Italy.

Ulgiate, S., Brown, M., Giampietro, M., Herendeen, R. and Mayumi, K. (editors) 1998. *Energy Flows in Ecology and Economy*. Proceedings of the International Workshop on Advances in Energy Studies, Porto Venere, Italy, 26-30 May 1998. MUSIS (Museum of Science and Scientific Information), Rome, Italy.

Ulgiate, S., Brown, M., Giampietro, M., Herendeen, R. and Mayumi, K. (Eds.) 2001. *Advances in Energy Studies. Exploring Supplies, Constraints, and Strategies*. Modesti Publisher, Padova, Italy, 698 pp.

Ulgiate S., Brown M., Giampietro M., Herendeen R. and Mayumi K. (Eds.), 2003. *Advances in Energy Studies (3): Reconsidering the importance of Energy*. Proceedings of the 3rd Biennial International Workshop held in Porto Venere, 24-28 September, 2002. Servizi Grafici Editoriali, Padova, Italy, 671 pp.

Special Issues of International Journals as editor (4)

1. Giampietro, M., Paoletti, M.G., Bukkens, S.G.F. and Han Chunru (Guest Editors). 1997. Biodiversity in Agriculture, For a Sustainable Future. Special issue of *Agriculture, Ecosystems and Environment* 62 (2-3). Elsevier, Amsterdam.
2. Paoletti, M. G., Giampietro, M., Chunru, H., Pastore, G. and Bukkens, S.G.F. (Guest Editors) 1999. Agricultural Intensification and Sustainability in China. Special issue of *Critical Reviews in Plant Sciences*, vol. 18, issue 3. CRC Press, Boca Raton, FL.

3. Giampietro, M. (guest editor) 2000. *Societal Metabolism—Part 1 of 2: Introduction of the Analytical Tool in Theory, Examples, and Validation of Basic Assumptions*. Special issue of *Population and Environment* 22 (No. 2): 97-254.
4. Giampietro, M. (guest editor) 2001. *Societal Metabolism. Part 2 of 2: Specific Applications to Case Studies*. Special issue of *Population and Environment* 22 (No. 3): 257-352.

Contributions for Encyclopedia (4)

1. Giampietro, M. and Pimentel, D. 1994. Energy utilization in agriculture. In: C.J. Arntzen and E.M. Ritter (Eds.), *Encyclopedia of Agricultural Science*, Vol. 2. San Diego (CA), Academic Press, Inc., pp. 63-76.
2. Giampietro, M. 2002 Energy use in agriculture. In: *Encyclopedia of Life Sciences*. Nature Publishing Group. Accessibile su internet: <http://www.els.net/>
3. Giampietro, M. and Mayumi, K. 2004. Complex systems and energy. In: C. Cleveland (Ed.), *Encyclopedia of Energy*. Elsevier, San Diego, Vol. 1, pp. 617-631.
4. Giampietro M., Mayumi K. and Pimentel D. 2006 Mathematical Models of Society and Development: dealing with the complexity of multiple-scales and the semiotic process associated with development – in: *Mathematical Models of Society and Development* [theme 6.3] Jerzy Filar (Editor) Encyclopedia Of Life Support Systems (EOLSS) – Developed under the auspices of the UNESCO, EOLSS Publishers, Oxford, UK, [<http://www.eolss.net>] .

Papers in International Journals (65)

1. Giampietro, M. and Pimentel, D. 1990. Alcohol and biogas production from biomass. *Critical Reviews in Plant Sciences* 9: 213 -234.
2. Giampietro, M. and Pimentel, D. 1990. Assessment of the energetics of human labor. *Agriculture, Ecosystems and Environment* 32: 257-272.
3. Giampietro, M. and Pimentel, D. 1991. Energy Efficiency: assessing the interaction between humans and their environment. *Ecological Economics* 4: 117-144.
4. Giampietro, M., Pimentel, D. and Cerretelli, G. 1992. Energy analysis of agricultural ecosystem management: Human return and sustainability. *Agriculture, Ecosystems and Environment* 38: 219-244.
5. Giampietro, M. and Bukkens, S.G.F. 1992. Sustainable development: Scientific and ethical assessments. *Journal of Agricultural and Environmental Ethics* 5: 27-57.
6. Giampietro, M. and Pimentel, D. 1992. Energy efficiency and nutrition in societies based on human labor. *Ecology of Food and Nutrition* 28: 11-32.
7. Giampietro, M., Pimentel, D. and Cerretelli, G. 1992. Assessing technological changes in agricultural production. *Ambio* 21 (7): 451-459.
8. Giampietro, M., Bukkens S.G.F. and Pimentel D. 1992. Limits to population size: three scenarios of energy interaction between human society and ecosystem. *Population and Environment* 14 (2): 109-131.

9. Aggarwal, G.C., Pimentel, D. and Giampietro, M. 1992. Weed benefits and costs in rice and wheat production in India. *Agriculture, Ecosystems and Environment* 39 (3-4): 235-244.
10. Giampietro, M. 1992. Genetic engineering and risks to the biosphere. *International Journal of the Unity of Sciences* 5 (1): 7-30.
11. Giampietro, M., Bukkens, S.G.F. and Pimentel, D. 1993. Labor productivity: A biophysical definition and assessment. *Human Ecology* 21 (3): 229-260.
12. Giampietro, M. and Pimentel, D. 1993. The tightening conflict: Population, energy use, and the ecology of agriculture. *NPG Forum*, October 1993. Negative Population Growth Inc., Taeneck, NJ. [Http://www.npg.org/forums/tightening_conflict.htm](http://www.npg.org/forums/tightening_conflict.htm).
13. Giampietro, M., Bukkens, S.G.F. and Pimentel, D. 1994. Models of energy analysis to assess the performance of food systems. *Agricultural Systems* 45(1): 19-41.
14. Pimentel, D. and Giampietro, M. 1994. Global population, food, and the environment. *Trends in Ecology and Evolution* 9 (6): 239.
15. Pimentel, D., Giampietro, M. and Bukkens, S.G.F. 1994. Optimum population for US and Latin America. Proceedings of the First World Optimum Population Congress, Cambridge University, 9-11th August 1993. *Better World, The Magazine of the Optimum Population Trust (OPT)*, No. 3 (January 1994), pp. 19-21.
16. Pimentel, D. and Giampietro, M. 1994. Implications of the limited potential of technology to increase the carrying capacity of our planet. *Human Ecology Review* 1(2): 249-252.
17. Giampietro, M. 1994. Sustainability and technological development in agriculture: A critical appraisal of genetic engineering. *BioScience* 44 (10): 677-689.
18. Giampietro, M. 1994. Using hierarchy theory to explore the concept of sustainable development. *Futures* 26 (6): 616-625.
19. Conforti, P. and Giampietro, M. 1996. Energy use in agriculture: An empirical note on technical development and ecological loading. *Tropicultura* 14 (3): 118-121.
20. Giampietro, M. 1997. The link between resources, technology and standard of living: A theoretical model. In: L. Freese (Ed.), *Advances in Human Ecology*, Vol. 6. JAI Press, Greenwich (CT), pp. 73-128.
21. Giampietro, M., Bukkens, S.G.F. and Pimentel, D. 1997. The link between resources, technology and standard of living: Examples and applications. In: L. Freese (Ed.), *Advances in Human Ecology*, Vol. 6. JAI Press, Greenwich (CT), pp. 129-199.
22. Giampietro, M. 1997. Socioeconomic constraints to farming with biodiversity. *Agriculture, Ecosystems and Environment* 62: 145-167.
23. Gomiero, T., Giampietro, M., Bukkens, S.G.F. and Paoletti, M.G. 1997. Biodiversity use and technical performance of freshwater fish aquaculture in different socioeconomic contexts: China and Italy. *Agriculture, Ecosystems and Environment* 62: 169-185.
24. Giampietro, M., Ulgiati, S. and Pimentel, D. 1997. Feasibility of large-scale biofuel production: Does an enlargement of scale change the picture? *BioScience* 47 (9): 587-600.
25. Giampietro, M. and Mayumi, K. 1997. A dynamic model of socioeconomic systems

based on hierarchy theory and its application to sustainability. *Structural Change and Economic Dynamics* 8 (4): 453-470.

26. Giampietro, M. 1997. Socioeconomic pressure, demographic pressure, environmental loading and technological changes in agriculture. *Agriculture, Ecosystems and Environment* 65 (3): 201-229.
27. Conforti, P. and Giampietro, M. 1997. Fossil energy use in agriculture: an international comparison. *Agriculture, Ecosystems and Environment* 65 (3): 231-243.
28. Giampietro, M. 1997. Complexity in Ecological Economics: another buzz word or a new scientific paradigm? *European Society for Ecological Economics News Letter*, No. 3 (Nov. 97): pp. 2-3.
29. Giampietro, M. and Mayumi, K. 1998. Another view of development, ecological degradation and north-south trade. *Review of Social Economy* 56 (1): 20-36.
30. Pimentel, D., Giampietro, M. and Bukkens, S.G.F. 1998. An optimum population for North and Latin America. *Population and Environment* 20 (2): 125-148.
31. Mayumi, K., Giampietro, M. and Gowdy, J. 1998. Georgescu-Roegen/Daly versus Solow/Stiglitz revisited. *Ecological Economics* 27: 115-117.
32. Paoletti, M.G., Giampietro, M., Chunru, H., Pastore, G. and Bukkens, S.G.F. 1999. Studying agricultural intensification and sustainability in PR China. *Critical Reviews in Plant Sciences* 18 (3): 257-260.
33. Giampietro, M., Bukkens, S.G.F. and Pimentel, D. 1999. General trends of technological changes in agriculture. *Critical Reviews in Plant Sciences* 18 (3): 261-282.
34. Li Ji, Giampietro, M., Pastore, G., Cai Liewan and Luo Huaer 1999. Factors affecting technical changes in rice-based farming systems in southern China: Case study of Qianjiang municipality. *Critical Reviews in Plant Sciences* 18 (3): 283-298.
35. Giampietro, M. and Pastore, G. 1999. Multidimensional reading of the dynamics of rural intensification in China: the AMOEBA approach. *Critical Reviews in Plant Sciences* 18 (3): 299-330.
36. Pastore, G., Giampietro, M. and Li Ji 1999. Conventional and land-time budget analysis of rural villages in Hubei province, China. *Critical Reviews in Plant Sciences* 18 (3): 331-358.
37. Gomiero, T., Giampietro, M., Bukkens, S.G.F., Cai Liewan and Xu Jinze 1999. Environmental and socioeconomic constraints to the development of freshwater fish aquaculture in China. *Critical Reviews in Plant Sciences* 18 (3): 359-372.
38. Giampietro, M., Mayumi, K. and Pastore, G. 1999. Energy analysis as a tool for sustainability: Lessons from complex systems theory. In "Tempos in Science and Nature: structures, relations and complexity" *Annals of the New York Academy of Sciences* 879: 344-367.
39. Giampietro, M. 1999. Sustainability, the new challenge of governance, and post-normal science. *Politics and the Life Sciences* 18 (2): 218-221.
40. Giampietro, M., Mayumi, K. and Martinez-Alier, J. 2000. Blending new insights from complex system thinking with old insights from biophysical analyses of the economic process. *Population and Environment* 22 (2): 97-108.
41. Giampietro, M. and Mayumi, K. 2000. Multiple-scale integrated assessment of

- societal metabolism: Introducing the approach. *Population and Environment* 22 (2): 109-153.
42. Giampietro, M. and Mayumi, K. 2000. Multiple-scales integrated assessments of societal metabolism: Integrating biophysical and economic representations across scales. *Population and Environment* 22 (2): 155-210.
 43. Pastore, G., Giampietro, M. and Mayumi, K. 2000. Societal metabolism and multiple-scales integrated assessment: Empirical validation and examples of application. *Population and Environment* 22 (2): 211-254.
 44. Gomiero, T. and Giampietro, M. 2001. Multiple-scale integrated analysis of farming systems: The Thuong Lo commune (Vietnamese uplands) case study. *Population and Environment* 22 (3): 315 -352.
 45. Giampietro, M. 2001. Human ecology: The science of sustainability for the third millennium? In: V. Bhasin, V.K. Srivasta, M.K. Bhasin (Eds.), *Human Ecology in the New Millennium*. KAMLA-RAJ Enterprises, India, pp. 9-24.
 46. Giampietro, M., Mayumi, K. and Bukkens, S.G.F. 2001. Multiple-scale integrated assessment of societal metabolism: an analytical tool to study development and sustainability. *Environment, Development and Sustainability* 3 (4): 275-307.
 47. Giampietro, M. 2002. The precautionary principle and ecological hazards of genetically modified organisms. *AMBIO* 31 (6): 466-470.
 48. Giampietro, M. 2002. Complexity and scales: The challenge for integrated assessment. *Integrated Assessment* 3 (2-3): 247-265.
 49. Allen T.F.H., Giampietro, M. and Little, A.M. 2003. Distinguishing ecological engineering from environmental engineering. *Ecological Engineering* 20: 389-407.
 50. Giampietro, M. and Ramos-Martin, J. 2005. Multi-scale integrated analysis of sustainability: a methodological tool to improve the quality of the narratives. *International Journal of Global Environmental Issues* 5 (no. 3/4): 119-141.
 51. Ramos-Martin, J. and Giampietro, M. 2005. Multi-scale integrated analysis of societal metabolism: Learning from trajectories of development and building robust scenarios. *International Journal of Global Environmental Issues* 5 (no. 3/4): 225-263.
 52. Gomiero, T. and Giampietro, M. 2005. Graphic tools for data representation in integrated analysis of farming systems. *International Journal of Global Environmental Issues* 5 (3/4): 264-301.
 53. Giampietro, M. and Ulgiati, S. 2005. An integrated assessment of large-scale biofuel production. *Critical Review in Plant Sciences* 24: 1-20.
 54. Giampietro, M., Mayumi, K. and Munda, G. 2006. Integrated assessment and energy analysis: Quality assurance in multi-criteria analysis of sustainability. *Energy* 31(1): 59-86.
 55. Gomiero, T., Giampietro, M. and Mayumi, K. 2006. Facing complexity on agro-ecosystems: a new approach to farming system analysis. *International Journal of Agricultural Resources, Governance and Ecology* 5 (2/3): 116-144.
 56. Mayumi, K. and Giampietro, M. 2006. The epistemological challenge of self-modifying systems: Governance and sustainability in the post-normal science era. *Ecological Economics*, 57: 382-399.

57. Giampietro, M., Mayumi, K., and Ramos-Martin J. 2006. Can biofuels replace fossil energy fuels? A multi-scale integrated analysis based on the concept of societal and ecosystem metabolism: Part 1 *International Journal of Transdisciplinary Research*, Vol.1(1):51-87 [<http://www.ijtr.org/>]
58. Allen, T.F.H. and Giampietro, M. 2006. Narratives and transdisciplines for a post-industrial world. *Systems Research and Behavioral Science* 23: (1-21)
59. Giampietro, M. 2006 Comments on "The Energetic Metabolism of the European Union and the United States" by Haberl and Colleagues: Theoretical and practical considerations on the meaning and usefulness of traditional energy analysis *Journal of Industrial Ecology* Vol.10(4): 173-185
60. Giampietro, M., Allen, T.F.H. and Mayumi, K. 2006. The epistemological predicament associated with purposive quantitative analysis *Ecological Complexity*. Vol 3 (4):307-327
61. Ramos-Martin J., Giampietro, M., and Mayumi, K., 2007. On China's exosomatic energy metabolism: an application of multi-scale integrated analysis of societal metabolism (MSIASM) *Ecological Economics* Vol 63(1): 174-191
62. Giampietro, M., Mayumi, K., and Ramos-Martin J. 2006. How serious is the addiction to oil of developed society? A multi-scale integrated analysis based on the concept of societal and ecosystem metabolism: Part 2 *International Journal of Transdisciplinary Research Vol. 2 (1): 42-92*
63. Pimentel D., Patzek T. Siegert F. Giampietro M. And Haberl H. 2008 Biofuel in Question *New Scientist* Vol. 197 (2639): 18
64. Giampietro, M., Mayumi, K., and Ramos-Martin J. 2009. Multi-scale integrated analysis of societal and ecosystem metabolism (MuSIASEM): Theoretical concepts and basic rationale *Energy* 34: 313-322.
65. Ramos-Martin J., Cañella-Bolta S., Giampietro M., Gamboa G. 2009 Catalonia's energy metabolism: using the MuSIASEM approach at different scales *Energy Policy* 37: 4658-4671

Chapters in Books (22)

1. Giampietro, M., Paoletti, F. and Pizzoferrato, L. 1990. New parameters for analysing the evolution of food systems. In: *A Study for the Valorization of Local Products in Sub-Saharan Africa: a Practical and a Theoretical Contribution*. Quaderni della Nutrizione, Nuova Serie n. 5. Istituto Nazionale della Nutrizione, Rome
2. Pimentel, D., Wen Dazhong and Giampietro, M. 1990. Technological changes in energy use in U.S. agricultural production. In: S. Gliessman (Ed.), *Agroecology: Researching the Ecological Basis for Sustainable Agriculture*. Springer-Verlag, New York, pp. 305-321.
3. Giampietro, M. and Pimentel, D. 1991. Model of energy analysis to study the biophysical limits for human exploitation of natural processes. In: C. Rossi and E. Tiezzi (Eds.), *Ecological Physical Chemistry*. Amsterdam: Elsevier Publisher, pp. 139-184.
4. Giampietro, M. 1997. What can we learn from energy efficiency studies in human societies in respect to regional and global sustainability In: J. Köhn and J. Gowdy (Eds.), *Implications of Ecological Economics for Regional Economics*. Rostocker Beiträge zur Regional- und Strukturforshung, Heft 10. University of Rostock, Rostock, pp. 123-155.

5. Giampietro, M. 1998. Energy budget and demographic changes in socioeconomic systems. In: S. Dwyer, U. Ganslosser and M. O'Connor (Eds.), *Life Science Dimensions: Ecological Economics and Sustainable Use*. Filander Verlag, Fürth, pp. 327-354.
6. Giampietro, M., Pastore, G. and Ulgiati, S. 1998. Italian agriculture and concepts of sustainability. In: E. Ortega and P. Safonov (Eds.), *Introduction to Ecological Planning Using Energy Analysis with Brazilian Case Studies*. LEIA-FEA Unicamp, Campinas, Brazil.
7. Giampietro, M. 1999. Economic growth, human disturbance to ecological systems and sustainability. In: L.R. Walker (Ed.), *Ecosystems of Disturbed Grounds*. Elsevier, Amsterdam, pp. 741-763.
8. Giampietro, M. and Pastore, G. 1999. Biophysical roots of "enjoyment of life" according to Georgescu-Roegen's bioeconomic paradigm. In: K. Mayumi and J. Gowdy (Eds.), *Bioeconomics and Sustainability: Essays in Honor of Nicholas Georgescu-Roegen*. Edward Elgar, Cheltenham (UK), pp. 287 –325.
9. Giampietro, M. and Pastore, G. 1999. Multidimensional approaches to assess and evaluate sustainability in agriculture. In: M. Härdtlein, M. Kaltschmitt, I. Lewandowski and H.N. Wurl (Eds.), *Nachhaltigkeit in der Landwirtschaft*. Erich Schmidt Verlag, Berlin, pp. 263-286.
10. Giampietro, M., Mayumi, K. and Pastore, G. 2000. Socioeconomic systems as complex self-organizing adaptive holarchies: The dynamic exergy budget. In: Yaneer Bar-Yam (Ed.), *Unifying Themes in Complex Systems*. New England Complex Systems Institute Series on Complexity. Perseus Books, Cambridge, MA, pp. 209-219.
11. Giampietro, M., Pastore, G. and Mayumi, K. 2000. Socioeconomic systems as nested dissipative adaptive systems (holarchies) and their dynamic energy budget: validation of the approach. In: Yaneer Bar-Yam (Ed.), *Unifying Themes in Complex Systems*. New England Complex Systems Institute Series on Complexity. Perseus Books, Cambridge, MA, pp. 223-232.
12. Giampietro, M. and Pastore, G. 2000. The AMOEBA approach: A tool for multidimensional analyses of agricultural system performance. In: J. Köhn, J. Gowdy, and J. van der Straaten (Eds.), *Sustainability in Action. Sectoral and Regional Case Studies*. Edward Elgar, Cheltenham (UK)
13. Giampietro, M. and Pastore, G. 2001. Operationalizing the concept of sustainability in agriculture: Characterizing agroecosystems on a multi-criteria, multiple scale performance space. In: S.R. Gliessman (ed.), *Agroecosystem Sustainability-Developing Practical Strategies*. CRC Press, Boca Raton, pp. 177-202.
14. Giampietro, M. 2003. Complexity and scales: the challenge for integrated assessment. In: J. Rotmans and D.S. Rothman (Eds.), *Scaling Issues in Integrated Assessment*. Swets & Zeitlinger B.V., Lissen, the Netherlands, pp. 293-327.
15. Mayumi, K. and Giampietro, M. 2004. Entropy in ecological economics. In: J. Proops and P. Safonov (Eds.), *Modeling in Ecological Economics*. Edward Elgar, Cheltenham (UK), pp. 80-101.
16. Giampietro, M. and Mayumi, K. 2006. Efficiency, Jevons' paradox and the evolution of complex adaptive systems. In: Ajit Sinha and Siddhartha Mitra (Eds.), *Economic*

Development, Climate Change and the Environment. Routledge India, New Delhi. Pp. 203-223

17. Giampietro, M., Allen, T.F.H. and Mayumi, K. 2007. Science for Governance: the implications of the complexity revolution. In: A. Guimaraes-Pereira, S. Guedes-Vaz, S. Tognetti (Eds.), *Interfaces Between Science and Society*. Greenleaf Publishing pp 82-99.
18. Giampietro, M. 2008 Studying the “addiction to oil” of developed societies using the approach of Multi-Scale Integrated Analysis of Societal Metabolism (MSIASM) – In: F. Barbir and S. Ulgiati (editors) *Sustainable Energy Production and Consumption and Environmental Costing* – NATO Advanced Research Workshop – NATO Science for Peace and Security Series: C-Environmental Security Springer, The Netherlands
19. Giampietro, M. 2008 The future of agriculture: GMOs and the agonizing paradigm of industrial agriculture. In: A. Guimaraes Pereira and S. Funtowicz, (Editors) *Science for Policy: Challenges and Opportunities* Oxford University Press New Dehli
20. Giampietro, M. and Mayumi, K. 2008 Complex Systems Thinking and Renewable Energy Systems In: D. Pimentel (Editor) *Renewable Energy Systems: Environmental and Energetic Issues* - Springer
21. Gowdy, J., Giampietro, M., Ramos-Martin, J. and Mayumi, K. 2009 Incorporating biophysical foundations in a hierarchical model of societal metabolism. In: Rick Holt (editor), *Post Keynesian Economics and the Environment*. Edward Elgar, Cheltenham, UK
22. Giampietro, M., Mayumi, K., and Ramos-Martin J. (in press) Two conceptual tools for Multi-Scale Integrated Analysis of Societal and Ecosystem Metabolism (MuSIASEM): “Multi-Purpose Grammars” and “Impredicative Loop Analysis” In: K. Farrell, S. van den Hoven, T. Luzzati (Eds.), *Beyond Reductionism: interdisciplinary research in Ecological Economics* Routledge

Papers in Proceedings (23)

1. Giampietro, M. 1992. Escaping the Georgescu-Roegen paradox: Equilibrium and non-equilibrium thermodynamics to describe technological evolution. In: *Entropy and Bioeconomics: Proceedings of the First International Conference of the European Association for Bioeconomic Studies (EABS)*, Rome, 28-30 November 1991. Milan (Italy), Nagard, pp. 202-229.
2. Giampietro, M. 1994. The relation between the performance of renewable energy technologies and social and economic structure. In: Proceedings of the Second International Congress *Energy, Environment and Technological Innovation*, University La Sapienza, Rome, Italy, October 12-16, 1992. University of Rome La Sapienza and Universidad Central de Venezuela, Rome, pp. 11-42.
3. Giampietro, M. and Mayumi, K. 1997. A model of energy analysis to explore the link between standard of living, technology and ecological stability. In: J.C. Dragan, M.C. Demetrescu and E.K. Seifert (Eds.), *Implications and Applications of Bioeconomics*. Proceedings of the Second International Conference of the European Association for Bioeconomic Studies (E.A.B.S.). Edizioni Nagard, Milano, pp. 156-182.

4. Giampietro, M. 1998. The link between demographic growth, economic development, technological changes in agriculture and environmental impact. In: M. Giampietro, A. Grandolini, G. Pastore, B.J. Przewozny, and G.T. Scarascia-Mugnozza (Eds), *The 50th Anniversary of the United Nations and the Italian Contribution Toward the Realization of the "Earth Charter."* Scritti e Documenti Vol. XXI. Accademia Nazionale delle Scienze (detta dei XL), Rome, Italy, pp. 131- 160.
5. Giampietro, M., Mayumi, K. and Pastore, G. 1998. A dynamic model of socio-economic systems described as adaptive dissipative holarchies. In: Ulgiati et al. (Eds), *Energy flows in Ecology and Economy*. Proceeding of the International Workshop Advances in Energy Studies, Porto Venere, Italy, 26-30 May 1998. MUSIS (Museum of Science and Scientific Information), Rome, pp. 167-190
6. Pastore, G. and Giampietro, M. 2000. Ecological approach to agricultural production and ecosystem theory: The amoeba approach. In: M.A. Jabbar, D.G. Peden, M.A. Mohamed Saleem and H. Li Pun (Eds.), *Agro-ecosystems, Natural Resources Management and Human Health Related Research in East Africa*. Proceedings of an IDRC-ILRI international workshop held at ILRI, Addis Ababa, Ethiopia, 11-15 May, 1998. ILRI (International Livestock Research Institute), Nairobi, Kenya, pp. 15-30.
7. Ottaviani, D., Giampietro, M. and Pastore, G. 2000. Ecological approach to agricultural production and ecosystem theory: The MOMSIR approach. In: E. Feoli, D. Pottier and Z. Woldu (Eds.), *Sustainable Development of Dryland Areas of East Africa*. Proceedings of the International Workshop, Addis Ababa, 9-12 November, 1998. University of Trieste, Trieste, Italy, pp. 79-94.
8. Giampietro, M. and Munda, G. 2001. Integrated assessment of complex adaptive systems: an overview of epistemological challenges. In: S. Ulgiati, M. Brown, M. Giampietro, R. Herendeen and K. Mayumi (Eds), *Advances in Energy Studies. Exploring Supplies, Constraints, and Strategies*. Modesti Publisher, Padova, Italy, pp. 305-318.
9. Munda, G. and Giampietro, M. 2001. Integrated assessment of complex adaptive systems: an overview of policy challenges and available tools. In: S. Ulgiati, M. Brown, M. Giampietro, R. Herendeen and K. Mayumi (Eds.), *Advances in Energy Studies. Exploring Supplies, Constraints, and Strategies*. Modesti Publisher, Padova, Italy, pp. 329-341.
10. Gomiero, T. and Giampietro, M. 2001. Multiple-scale integrated assessment of farming systems in Uplands Vietnam. In: S. Ulgiati, M. Brown, M. Giampietro, R. Herendeen and K. Mayumi (eds), *Advances in Energy Studies. Exploring Supplies, Constraints, and Strategies*. Modesti Publisher, Padova, Italy, pp. 465-482.
11. Giampietro, M. 2001. Complexity and "quality" in the food system: Handling incommensurability, uncertainty, and legitimate contrasting views in the process of decision making. In: M. Pasquali (Ed.), *Food Safety, Food Quality and Food Ethics*. Preprints of EurSafe 2001, The Third Congress of the European Society for Agricultural and Food Ethics, 3-5 October 2001, Florence, Italy. A&Q Publisher, Milan, pp. 217-221.
12. Gomiero, T. and Giampietro, M., 2001. Integrated assessment of freshwater fish

- aquaculture in relation to different socioeconomic and ecological contexts. Expert paper contributed to the consultation: “*Expert consultation on Indicators of Sustainable Aquaculture Development*,” FAO, Rome, Italy, 24-27 September 2001.
13. Giampietro, M. and Mayumi, K. 2001. Integrated assessment of sustainability trade-offs: the challenge for ecological economics. *Paper prepared for the EC High Level Scientific Conference ESEE "Frontiers 1: Fundamental Issues of Ecological Economics."* Published in pdf on the site: <http://www.euroecolecon.org/frontiers> paper [112]
 14. Mayumi, K. and Giampietro, M. 2001. Epistemological challenge for modeling sustainability: Exploring the difference in meaning of risk, uncertainty and ignorance. *Paper prepared for the EC High Level Scientific Conference ESEE "Frontiers 1: Fundamental Issues of Ecological Economics,"* published in pdf on the site: <http://www.euroecolecon.org/frontiers> paper [119]
 15. Gomiero, T. and Giampietro, M. 2003. Multi-objective integrated representation (putting in perspective biophysical analyses) applied to aquaculture. In: S. Ulgiati, M. Brown, M. Giampietro, R. Herendeen and K. Mayumi (eds), *Advances in Energy Studies: Reconsidering the importance of Energy*. Servizi Grafici Editoriali, Padova, Italy, pp. 187-199.
 16. Giampietro, M. and Mayumi, K. 2003. An alternative energy analysis based on complex systems thinking (1): facing the epistemological impasse entailed by nested hierarchies. In: S. Ulgiati, M. Brown, M. Giampietro, R. Herendeen and K. Mayumi (Eds), *Advances in Energy Studies (3): Reconsidering the importance of Energy*. Servizi Grafici Editoriali, Padova, Italy, pp. 553-561.
 17. Giampietro, M. and Mayumi, K. 2003. An alternative energy analysis based on complex systems thinking (2): acknowledging the existence of hierarchies, scales and impredicative loops. In: S. Ulgiati, M. Brown, M. Giampietro, R. Herendeen and K. Mayumi (Eds), *Advances in Energy Studies (3): Reconsidering the importance of Energy*. Servizi Grafici Editoriali, Padova, Italy, pp. 563-574.
 18. Giampietro, M. 2003. Integrated assessment of agro-ecosystems: Looking for "negotiated solutions" rather than "optimal solutions". Proceedings of the Workshop on *New Directions in Agro-ecology Research and Education*, UW Madison, Madison, WI – May 29-31, 2002. Center for Integrated Agricultural Systems, University of Wisconsin at Madison, Madison, WI.
 19. Giampietro, M. 2005. The role of quantitative analyses in participatory integrated assessment of sustainability. In: Farrell, K.N. and Ravetz, J.R. (Eds.), *Governance of Science: The New Politics of Science, Historical Perspectives and Future Prospects*. Institute of Governance, Public Policy and Social Research Working Paper QU/GOV/2/2005. Queen's University of Belfast, Belfast, Northern Ireland, pp. 25-50.
 20. Giampietro, M., Mayumi, K. and Ramos-Martin J. 2008 Multi-Scale Integrated Analysis of Societal Metabolism (MSIASM): an overview of rationale and theory *Proceedings of the Biennial International Workshop Advances in Energy Studies (5): "Perspectives into energy futures"* .

21. Giampietro, M., Mayumi, K. and Ramos-Martin J. 2008 An application of MSIASM to chinese exosomatic energy metabolism *Proceedings of the Biennial International Workshop Advances in Energy Studies (5): "Perspectives into energy futures"*.
22. Giampietro, M and Mayumi, K. 2008 The Blunder of Large Scale Biofuels Production From Energy Crops: Energy Throughput per Hour of Labor in the Energy Sector, Power Density and Land constraint. *ISEE Biennial Conference 2006 Proceedings*.
23. Giampietro, M., Gamboa G. and Mayumi, K. 2009 The Jevons Paradox: Nested Hierarchical Levels Within Evolving Metabolic Systems. *6th Biennial International Workshop Advances in Energy Studies – Toward a holistic approach based on science and humanity 2008 H. Schnitzer and S. Ulgiati (Editors) Proceedings*. pp 403-412 – TU Graz University of Technology

Technical Reports (4)

1. Pimentel, D. and Giampietro, M. 1994. Food, Land, Population and the U.S. Economy. Report prepared for Carrying Capacity Network (CCN), Washington, DC. [Http://www.carryingcapacity.org/pubs.htm](http://www.carryingcapacity.org/pubs.htm).
2. Giampietro, M., Ulgiati, S. and Pimentel, D. 1997. A critical appraisal of energy assessments of biofuel production systems: Compatibility with ecological and socioeconomic context. *Environmental Biology*, Cornell Technical Report 97-1, 39 pp.
3. Ulgiati, S., Giampietro, M. and Pimentel, D. 1997. A critical appraisal of energy assessments of biofuel production systems: A standardized overview of literature data on herbaceous and woody crops. *Environmental Biology*, Cornell Technical Report 97-2, 130 pp.
4. Giampietro M. and Sorman H. A. 2009 Interlinkages and Forecasting made possible by the use of the DECOIN analytical tool kit – *Report on Environmental Science #1 ICTA- Universitat Autònoma Barcelona – <http://www.recercat.net/handle/2072/16311>*

Other publications non in English (11)

1. Bronzi, P., Giampietro, M., De Donato, M., Giovannozzi Sormanni, G. and Scarascia Mugnozza G.T. 1983. *Materiali e Riflessioni per la definizione di una Iniziativa Italiana sulle Tecnologie Appropriate Rurali nell'Africa Sub-Sahariana*. Istituto Italo-Africano, Roma. pp.90
2. Quaglia, G.B. and Giampietro, M. 1989. Technologies Alimentaires et Criteries de Choix pour la Formation de Stocks d'Urgence. Conference Regionale "New Technologies in the Food Aid, Sector of Cooperation to Development : Potentialities and role of Freeze-Drying -Dakar 3-5 Juillet 1989 - Ministry of Social Development of Senegal and The African Regional Centre for Technology. - Proceedings, pp. 123- 139.
3. Giampietro, M. 1994. Soutenabilité et développement technologique en agriculture. *Revue Internationale de Systémique* 8 (4-5): 425-453. (translation of paper #24).
4. Giampietro, M., and Gomiero, T., 2005 La necessità di un' analisi integrata degli agro-ecosistemi: verso una sostenibilità pluralistica. *L' Ambiente*, 2:30-35

5. Giampietro, M., and Gomiero, T., 2005. Rappresentazione Integrata Multi Obiettivo (RIMO) come modello di analisi integrata (multi-criteriale) dei sistemi di produzione agricola. *Estimo e Territorio*, Marzo: 14 - 24.
6. Giampietro, M. 2005 Scienza Post-Normale e implicazioni sul curriculum educativo In: E. Falchetti e S. Caravita (Editori) *Per una ecologia dell' educazione ambientale*. Schoolé Futuro, Bologna pp 87-92
7. Giampietro, M. 2006 Processi partecipativi come strumento di condivisione delle scelte. In: R. Carboni, G. Crisponi, M. Lombardo, G. Monasta (Editori) *Agrobiotecnologie nel contesto Italiano*. Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione, Roma pp. 341-348
8. Giampietro, M. 2007 Qualità delle Fonti Energetiche: biocarburanti e combustibili fossili. In M. G. Paoletti, G. Chillemi, V. Boatto, D. Pettenella, T. Gomiero (Editori) *Proceedings del convegno "Agroenergie per lo sviluppo rurale: scenari a confronto"* Padova, 18 Settembre, 2006. Veneto Agricoltura
9. Giampietro, M. 2006 "Lo sviluppo tecnologico dell'agricoltura in relazione ai limiti biofisici e socioeconomici: attenzione alla sindrome del Concorde" *Proceedings del III Convegno Internazionale "Scienza e Società: le frontiere dell' invisibile"* organizzato dal Consiglio dei Diritti Genetici – Roma, 30 Novembre – 2 Dicembre, 2006.
10. Giampietro, M. 2008 Sozialökologischer Umbau: Ein neuer analytischer Ansatz zur Erkundung des Entscheidungsraumes und der dialektischen Spannung von Nachhaltigkeit – in J. Delheim and G. Krause (Editors) *Für eine neue Alternative – Rosa-Luxemburg-Stiftung 77 – Verlag Berlin* pp. 207-226
11. Giampietro, M. 2009 Impatto della qualità delle fonti energetiche sulla società: fonti energetiche a confronto in M.G. Paoletti T. Gomiero *"Opportunità e limiti della agroenergie"* Aracne Editrice s.r.l. Roma pp.79-104

Conferences, Workshops, Invited lectures

1. *Second Vienna Center Conference on Ecology and Economics, Barcelona, 26-29 September, 1987*. Invited speaker: Food-energy security for 5 billion humans: the cost of a rapidly growing population.
2. *International Conference on Research in Sustainable Agriculture. Agriculture Canada and MacDonal college of McGill University, Montreal, Canada, 3-4 February, 1989*. Invited speaker The energy efficiency of various farming systems.
3. *First International Conference of the International Society of Ecological Economics (ISEE), "The Ecological Economics of Sustainability" The World Bank, Washington DC, 21-23 May 1990*. Assessing the Interaction between humans and their Environment.
4. *International Conference on Sustainable Agriculture, Padova University, Padova, Italy, 26-29 September 1990*. Assessing the trade-offs for different biomass uses: food, fuel, or environmental stabilizer.
5. *International Workshop on Ecological Physical Chemistry, Siena University, Siena, Italy, 8-12 November 1990*. Invited speaker: Energy analysis models to study

- biophysical limits for human exploitation of natural processes.
6. *International Conference on Human Ecology: "Human Responsibility and Global Chang"* University of Göteborg, Göteborg (Sweden), 9-14 June 1991. Sustainable Development: Limitations of Scientific Assessment.
 7. *International Conference on the Unity of Science, ICUS, Seoul (South Korea), 23-26 August 1991.* Invited speaker: Genetic engineering and risks to the biosphere.
 8. *First International Conference of the European Association for Bioeconomic Studies (EABS), Entropy and Bioeconomics, Rome, Italy, 28-30 November 1991.* Invited speaker: Thermodynamics of equilibrium and thermodynamics of non-equilibrium to discuss Georgescu-Roegen Bioeconomics paradigm. .
 9. *National Carrying Capacity Issues Conference, Carrying Capacity Network, Washington D.C., 19-21 June 1992.* Invited speaker: "Biophysical limits to population growth."
 10. *36th annual meeting of the International Society for the Systems Sciences, General Systems Approaches to Alternative Economics and Values, Denver, 12-17 July 1992.* Invited speaker: "Energy, economy, and efficiency".
 11. *Second Meeting of the International Society of Ecological Economics (ISEE), Investing in Natural Capital, a Prerequisite for Sustainability"* Stockholm (Sweden), 3-6 August 1992. The Energetics of an Ecological Revolution of the World Economy.
 12. *Second International Congress on Energy, Environment and Technological Innovation, University of Rome La Sapienza and Universidad Central de Venezuela, Rome, 12-16 October 1992.* Invited speaker: : "The relation between the performance of renewable energy technologies and social and economic structure."
 13. *Preparatory Convention for the World "States General," Environment and Development from a Humanist Perspective Group de Vezelay, Paris, 26-30 September 1993.* Invited speaker: "Sustainable Development: technology, population and environmental constraints".
 14. *Second International Conference of the European Association for Bioeconomic Studies (EABS), Implications and Applications of Bioeconomics, Palma de Mallorca, Spain, 11-13 March 1994.* Invited speaker: A model of energy analysis to explore the link between standard of living, technology and ecological stability".
 15. *Third International Meeting of the International Society of Ecological Economics (ISEE), San Jose, Costa Rica, 23-28 October 1994.* A biophysical assessment of the welfare function and labor productivity: implications for sustainable development.
 16. *The New Science: A Workshop on the Ecosystem Approach and its Applications to Agriculture and Governance, University of Guelph, Guelph, Canada, 21-23 February 1995.* Plenary lecture: Indicators of agricultural sustainability.
 17. *International Conference "Ecology, Society, Economy," Universite' de Versaille, Saint Quentin, Paris, France, 23-25 May 1996.* "Energy budget and demographic changes in socioeconomic systems. "
 18. *Socio-Ecological-Economic Systems: From Information to Simulation, Workshop organized by the Russian Chapter of International Society of Ecological Economics, Pereslavl-Zalessky, Russian Federation, 16-21 July 1995.* Invited speaker: "Relevance of biophysical constraints in socioeconomic processes of self-organization."
 19. *Fourth Biennial Meeting of the International Society of Ecological Economics (ISEE), Designing Sustainability Boston University, Boston, August 4-7 1996.* Carrying

capacity and optimum population theoretical analysis and simulations. Organizer of technical session: "Elements of complex system theory and implications for dealing with complex systems behavior."

20. *International Symposium on Biodiversity in Agriculture: For a Sustainable Future, University of Padova and Beijing Agricultural University, Beijing, PR China, 19-21 September 1995.* Member of the organizing committee: Socioeconomic constraints to farming with biodiversity.
21. *Symposium for the 50th Anniversary of the Swiss National Council of Research, How Will the Future World Population Feed Itself? SAGUF, Zurich (Switzerland), 9-10 October 1996.* Invited speaker: "Fossil energy resources as a prerequisite for intensive agriculture: Problems and perspectives for the future."
22. *International Workshop on Population and Environment in Developed Societies, Istituto Ricerche sulla Popolazione/CNR, Rome, 28-29 October 1996.* Invited speaker: "Energy budget and demographic changes."
23. *International Workshop on Complexity and Decision Making, Istituto Nazionale della Nutrizione, Cortina d'Ampezzo, 20-26 May 1996.* Organizing committee: "Review of complex systems theories."
24. *Italian Contribution Toward the Realization of the Earth Charter, "Accademia Nazionale delle Scienze, Rome, 6-7 May 1996.* Organizing committee: "Factors affecting technological changes in agriculture".
25. *First International Workshop of the Centro Internacional Agricultura Tropical (CIAT)/University of Guelph project: "Development and Application of an Integrated Conceptual Framework to Tropical Ecosystems Based on Complex Systems Theories" CIAT, Cali, Colombia, 26-28 May 1997.* Invited speaker: "Implications of complex systems theories for farming system analysis".
26. *International Conference on Complex Systems, New England Complex Systems Institute, Nashua (NH), USA, 21-26 September 1997.* "Socioeconomic systems as complex self-organizing adaptive holarchies: (1) The dynamic energy budget, (2) Validation of the model and analysis of demographic changes."
27. *Symposium on Environmental Valuation, "Natural Capital: Institutional, Regional and Sectoral Dimension" Centre d'Economie et d'Ethique pour l'Environnement et le Developpement, Domain des Vaux de Cernay (Paris), France, 4-7 October 1997.* (Invited paper discussant and panel participant).
28. *Second International Conference of the European Society for Ecological Economics "Ecological Economics and Development" Universite' de Geneve Switzerland, 4-7 March 1998.* Keynote Speaker: "Challenging the Conventional View of Demographic Transition: The Biophysical Link Between Population, Natural Resources and Material Standard of Living"
29. *Biennial International Workshop Advances in Energy Studies: Energy Flows in Ecology and Economy Porto Venere May 26-30, 1998* (Organizing Committee) Plenary on: "A dynamic Model of Socio-economic Systems described as Adaptive Dissipative Holarchies".
30. *Second World Conference of Ecology INTECOL, Firenze, 19-21 luglio 1998;* Session of Agroecology (organized by S. Gliessman) Invited Speaker: "Operationalizing the concept of Sustainable Agriculture: the Amoeba approach".
31. *International Conference on "Sustainable Agriculture in Conflict between Ecological,*

- Economic and Social Constraints*” Oct 28-30, 1998 Stuttgart, Germany - IER, University of Stuttgart. Invited Speaker: “Multidimensional Approaches to Assess and Evaluate Sustainability in Agriculture”
32. *International Seminar on "Sustainability of Societal Development in East Asia"* organised by the Forward Studies Unit, European Commission - Joint Research Center Sevilla, Spain 9-11 November 1998 - Organizer of the session "Sources of information and networks, on Sustainability and Development"
 33. *Fifth Biennial Meeting of the International Society of Ecological Economics (ISEE), Beyond Growth: Policies and Institutions for Sustainability - Santiago, Chile 15-19, November, 1998.* Tutorial on : ”Complexity and its implications for decision making”
 34. *I simposi sobre la recerca en medi ambient a la UAB (first Symposium on Applied Research on environmental sustainability)-* Barcelona, 27 novembre 1998 - Plenary Speaker: “Interdisciplinary and transdisciplinary approaches in University research to deal with sustainability”
 35. *Series of Conferences in Economy and Ecology 98-99 - Fundacio’ Bancaixa, Valencia Dec 1st 1998* - Invited Speaker: “Population and Food Supply 200 years after Malthus”
 36. *Series of Seminars on biodiversity related issues Integrated Project Biodiversity - Swiss Science Foundation Sciences, February, ’99 Institute of Environmental University of Zürich, - invited lecturer -* “Socio-economic constraints affecting biodiversity in agriculture”
 37. *Inter-disciplinary research and policy analysis EVE Workshop (Environmental Valuation in Europe): Methodology and Approaches to Problems of high complexity - Barcelona 9-11 January 1999.* Plenary Speaker - “Defining high complexity according to the epistemological concept of complexity proposed by Robert Rosen”.
 38. *First solutions Workshop of the New Frameworks for Environmental Policy Making Project - Institute for Prospective Technological Studies – European Commission Joint Research Center Sevilla - Spain 21-22 January 1999* - Member of the discussion Panel
 39. *Inter-disciplinary research and policy analysis EVE Workshop (Environmental Valuation in Europe): 24-26 March 1999 - C3ED, Universite’ de Versailles;* Invited Speaker - Using a Multicriteria Multiple-scales Performance Space for integrated assessment
 40. *Second International Conference COPERNICUS (COoperation Programme in Europe for Research on Nature and Industry through Coordinated University Studies) - BCC’99 "Sustainable Universities: Inter-, Multi-, and Transdisciplinary Issues and Options". Universitat Autònoma Barcelona July 1-2 1999* - plenary speaker: “Sustainability and Complexity: the challenge of producing useful scientific information”
 41. *European Commission Environment and Climate Programme Advanced Study Course held at Universitat Autònoma Barcelona - September, 20th - October, 1st – 1999.* Teacher and Tutor of working groups in relation to the issue: “Implications of complexity for an integrated assessment of sustainability trade-offs: participative definition of a Multi-Objective Multiple-Scale Performance Space”.
 42. *Series of Seminars of the Graduate School of Energy Sciences– Kyoto University, Japan October 27th, ’99* - invited lecturer - “Integrated Assessment of the Sustainability of Socio-Economic Systems based on Biophysical Analyses”.

43. *Series of Lectures in Social Ecology –IFF - Institute for Interdisciplinary Studies of Austrian Universities Dept. of Social Ecology Vienna, Austria, May 3rd 2000* - invited lecturer – “Biophysical analysis of viability domains for socio-economic systems”
44. *Third International Conference of the European Society for Ecological Economics “Transition Towards a Sustainable Europe: Ecology, Economy and Policy” Vienna University of Economics and Business Administration Vienna, Austria May 4-6th 2000.* Invited Speaker: “Jevons’ Paradox, Scaling in Societal Metabolism and the Fairy tale of Knuzet Curves”.
45. *Second Biennial International Workshop Advances in Energy Studies: Exploring Supplies, Constraints and Strategies Porto Venere May 23-27, 2000* (Organizing Committee) Organizer of a plenary panel session and panelist: “The role that science has to play in the process of governance when dealing with the issue of sustainability”.
46. *Matrix 2000 workshop of the European Forum on Integrated Environmental Assessment (EFIEA) - International Centre for Integrative Studies (ICIS) Maastricht University The Netherlands July 12-19, 2000* (Invited speaker presenting a keynote paper): “Complexity and Scales: the challenge for integrated assessment”.
47. *EU-Project Southeast Asia in Transition - First Project Meeting - November 13th - 17th 2000, Los Banos, The Philippines* - Plenary Speaker on Multi-Criteria Analysis and Integrated Assessment of Sustainability Trade-offs
48. *International Meeting to develop a plan for a Center for Complexity Theory and its application to Policy and decision making. - University of Waterloo. Canada April 10th - 12th 2001* - invited member of the working group
49. *Public Lecture sponsored by the Canada Trust Walter Bean Visiting Professorship in the environment. University of Guelph, April 11th 2001* - Invited Lecturer: Multi-Scale Integrated Assessment of Societal Metabolism.
50. *University of Pisa - Department of Economics - Seminars for the Course of Environmental Economics - May 2nd, 2001* - Invited Speaker: Complexity and Epistemological challenges in Environmental Economics - Integrated Assessment across scales.
51. *EU-Project Southeast Asia in Transition - Research Seminar - How to apply the tool kit for integrated assessment of sustainability trade-offs to local situations. University of Chulalongkorn, Bangkok, Thailandia May 7th-11th, 2001* - Resource Person to illustrate the MSIASM approach to the 7 research groups participating in the SEA Trans project.
52. *EC High Level Scientific Conference, "Frontiers 1: Fundamental Issues of Ecological Economics," organized by the University of Cambridge, UK, 4-7 July 2001*- Member of the Scientific Committee, Invited Speaker presenting 2 papers (co-authored with Kozo Mayumi): “Integrated Assessment of Sustainability trade-offs: Methodological challenges for Ecological Economics” and “Epistemological challenge for modeling sustainability: exploring the difference in meaning of risk, uncertainty and ignorance”
53. *Third EurSafe Congress on: Food Safety, Food Quality and Food Ethics. Florence, 3-5 October 2001.* Invited Speaker: “Complexity and “quality” in the food system: handling incommensurability, uncertainty, and legitimate contrasting views in the process of decision-making.”
54. *Workshop on New Directions in Agroecology Research and Education – UW Madison - Madison, Wisconsin – 29-31 May, 2002* Plenary Speaker “Integrated Assessment of

- Agro-Ecosystems: looking for ‘negotiated solutions’ rather than ‘optimal solutions’
55. *EU-Project Southeast Asia in Transition - Second Project Meeting - August 5th - 10th 2002, University of Social Sciences and Humanities, Ho Chi Minh City, Vietnam - Plenary Speaker on “Tool Kits for integrated assessment of rural development”.*
 56. *Third Biennial International Workshop Advances in Energy Studies: Reconsidering the importance of energy Porto Venere September 21-28, 2002 (Organizing Committee). Plenary Speaker: An alternative energy analysis based on complex systems thinking*
 57. *Invited lecture within the seminar series on 'Transition Studies' at the Institute for Interdisciplinary Studies of Austrian Universities (IFF) - Department of Social Ecology - Multi-Scale Integrated Analysis of Societal Metabolism applied to farming system analysis - October 24th 2002*
 58. *Workshop “Biocombustibili tra realtà e illusioni” (Biofuels between reality and myths) – organized by Accademia Nazionale delle Scienze, detta dei XL, National Council of Research, la Fondazione Adriano Olivetti, and the Italian Union of Scientific Journalists. Rome January 14th, 2003 - Plenary Speaker – Characterizing alternative fuels on a multicriteria performance space.*
 59. *EC High Level Scientific Conference, "Frontiers 2: European Applications in Ecological Economics," organized by the University of La Laguna, Tenerife Spain, 11-16 February 2003 - Member of the Scientific Committee, - Invited participant to a workshop/discussion group on the integration of European Policies.*
 60. *International Workshop Democratic Governance of Technological Change in an Era of Globalization organized by the Science in Society Programme (Saïd Business School Oxford, UK), sponsored by the Economic & Social Research Council UK and the Fundacao Luso-Americana por o Desenvolvimento, Portugal – Lisbon, February, 23rd-26th, 2003 Invited discussant.*
 61. *Sustainable Balkan Workshop – Identifying Sustainability Strategies for Western Balkan Countries March 17th-20th, 2003 – Ljubljana, Slovenia – Plenary Speaker – Multi-scale integrated assessment of scenarios for an informed discussion of environmentally sound regional socio-economic development*
 62. *EU-Project Southeast Asia in Transition - Third Project Meeting - June 2nd - 6th 2003, IFF - Vienna, Austria – Responsible of the working group on Tools for Integrated Assessment and Policy Dialogue.*
 63. *Mansholt Graduate School – Wageningen University – Minisymposium: The Challenge to Ecological Economics Posed by Complexity by Silvio Funtowicz, Martin O'Connor, Ray Ison and Mario Giampietro – 22nd October, 2003 - key note presentation Multi-Scale Integrated Analysis of Sustainability*
 64. *International Workshop Interfaces Between Science and Society: Collecting Experiences for Good Practices – Organized by the Joint Research Center of the European Commission of ISPRA – KAM Unit - Milan, November 27th - 28th 2003 – Organizer of the breakout session: Science for Governance, the Implications of the Complexity revolution.*
 65. *International Workshop “Governance of Science: the new politics of science in historical perspective - ” Queen’s University - Centre for Sustainability; Institute of Governance, Public Policy and Social Research, Graduate School of Education and School of Politics and International Studies – March 9th -10th, 2004 Belfast– Invited Speaker: The role of quantitative analysis in Participatory Integrated Assessment of*

Sustainability.

66. *International Conference Bridging Scales and Epistemologies – Linking Local Knowledge with Global Science in Multi-Scale Assessments – Millennium Ecosystem Assessment Project – Bibliotheca Alexandrina - March 17th -20 th, 2004 Alexandria, Egypt* – Organizer of two panel sessions on Participatory Integrated Assessment of Agro-ecosystem Performance on Multiple Scale – and panelist in other two sessions (“Linking the local with the global” and “Scaling Issues in Integrated Assessment”).
67. *Gordon Research Conference on Industrial Ecology – Queen’s College – Oxford University August 1th -6 th, 2004 Oxford, UK* – Invited Speaker: “Multi-scale integrated analysis of societal metabolism in relation to industrial metabolism: studying the transition across agro-ecosystem types”.
68. *Scientific Society LIPHE4 – First Summer School on Participatory Integrated assessment of Sustainability - August 20-27, 2004, Deutschlandsberg, Austria-* Main organizer of the event, lecturer and responsible of working groups.
69. *Millennium Ecosystem Assessment combined Working Group Meeting – Kuala Lumpur, Malaysia, September 26-30, 2004* – Invited participant as Chapter Review Editor (Sub-Global Assessment – Multi-scale approach).
70. *United Nations – Economic Commissions for Latin America and the Caribbean (ECLAC) – Sustainable Development and Human Settlement Division – Santiago de Chile - October 12th-15th, 2004* – International Workshop on “major epistemological challenges that the problematique of sustainable development poses to science and technology” – Invited participant.
71. *Achieving Sustainable Catchment Management: Developing Integrated Approaches and Tools to Inform Future Policies – The MACAULAY LAND USE RESEARCH INSTITUTE – RELU WORKSHOP 2 “Multiple- scales: Developing pragmatic and meaningful ‘best-fit’ approaches” – Department of Geography, University College London, UK 10-12 November, 2004* – Plenary Speaker – “Conceptual Issues regarding scale in integrated assessment”.
72. *Scientific Society LIPHE4 – Second Summer School Developing toolkits for integrated and participatory analysis of sustainability - CEMCAM Torre Guil, Sangonera la Verde, Spain, July 16-22, 2005* - Main organizer of the event, lecturer and responsible of working groups.
73. *International Assessment of Agricultural Science and Technology for Development (IAASTD) – Scenarios Development Meeting – The World Bank, Washington DC, USA – 11-15 October 2005* – Lead Author - section 3 the global level – Plausible Futures
74. *“Making Sense of Science in Society” workshop – Economic & Social Research Council Science in Society Programme – James Martin Institute – Saïd Business School – Oxford University, Oxford, UK – 25th January 2006* – Invited Participant
75. *Thematic Network Sustainability Strategy – “Toward a Synthetic Model of Sustainability Politics” Intervention Conference - Brussels, April 26th – 28th 2006*– Speaker on “integrated analysis of alternative energy sources: can biofuels replace fossil fuels?”
76. *International Assessment of Agricultural Science and Technology for Development (IAASTD) – Second Meeting – Bangkok, Thailand – 1-5 May 2006* – Lead Author – Chapter 4 - the global level – Drivers
77. *Livelihoods and Ecosystems – Dealing with Complexity in Rural development and*

- Agriculture – University of Guelph, Canada – 4-7 June 2006 – Keynote Speaker – Complexity and Sustainability: The challenges of Integrated Assessment and their implications on science for governance*
78. *THEMES (Summer School sponsored by the EU Marie Curie Program) “Emerging Theories and Methods in Sustainable Research” – ICTA- Universitat Autònoma de Barcelona, Spain – 8-12 June 2006 – one day and half courses on theory and applications of Multi-Scale Integrated Analysis of Societal and Ecosystem Metabolism.*
 79. *Scientific Society LIPHE4 – third Summer School Developing toolkits for integrated and participatory analysis of sustainability - CEMCAM Torre Guil, Sangonera la Verde, Spain, July 16-22, 2006 - Main organizer of the event, lecturer and responsible of working groups.*
 80. *Fifth Biennial International Workshop Advances in Energy Studies: Energy Flows in Ecology and Economy Porto Venere September 12-16, 2006 (Organizing Committee) - #1 Special symposium on Governance of Sustainability (Integrating Resource Use, Economic and Social Development, Ecosystems Health). Plenary paper: MuSIASEM for checking the feasibility and desirability of alternatives to fossil energy. How serious is the addiction to oil of modern societies?”. #2 Mayumi, K., Ramos-Martin J., Giampietro, M. “The energy metabolism of China and other world countries in relation to the Kyoto protocol and the possible role of biomass and other alternative energy sources”.*
 81. *Veneto Agricoltura – Agroenergy for Rural Development: conflicting scenarios – Padua University, September 18th, 2006 – Plenary Speaker: Quality of Energy Sources: Biofuels vs Fossil fuels .*
 82. *CSIRO Livestock Industries: Horizons in Livestock Sciences – Research for the Farm of the Future - 8-11 October 2006 Gold Coast, Queensland Australia – Invited Plenary Speaker – Biophysical and Socioeconomic constraints Shaping Technological Evolution of Agriculture*
 83. *The Genetic Rights Council – III International Conference: Science and Society: The frontier of the invisible – Workshop GMOs, famine and the future - 1 December 2006 Villa Piccolomini, Rome, ITALY – Invited Plenary Speaker – The technological development of agriculture in relation to biophysical and socio-economic constraints: how to avoid the “Concorde syndrome”.*
 84. *Scientific Society LIPHE4 – fourth Summer School Developing toolkits for integrated and participatory analysis of sustainability – Assessing sustainable development in the Greater Mekong sub-region” an APN CAPaBLE project. Mekong Institute Khon Kahen, Thailand, May 21st – June 1st, 2007 - Organizer of the event and lecturer.*
 85. *Rosa Luxemburg Foundation International Workshop: Social-ecological Transformation and Reconstruction as a Central Challenge for Alternative Economic Conceptions and Strategies of economic policies – Berlin, June 29th-July 1st, 2007 Invited Plenary Speaker – Bioeconomics and Multi-Scale Analysis: how to bridge the macro and the micro within integrated analysis of sustainability.*
 86. *NATO Advanced Research Workshop - Sustainable Energy Production and Consumption and Environmental Costing – Parthenope University - Naples, July 3rd-7th, 2007 – invited Plenary speaker: Studying the “addiction to oil” of developed societies using the approach of Multi-Scale Integrated Analysis of Societal Metabolism*
 87. *Helmoltz Center for Environmental research – UFZ – Ghosts in the machine: Human*

- Agency in Ecological-Economic Modelling – Leipzig, November 29th-30th, 2007 – invited Plenary speaker: The place of the observer in ecological economic modelling.*
88. *Center for International Forest Research (IFOR) – Poverty and Environment Network (PEN) Workshop – Barcelona January 8th – 12th 2008. Invited Speaker: A Multi-Scale Integrated Analysis of Rural Development*
 89. *International Center Crocevia and Centro di Cultura Ecologica – International Workshop Agro-biofuels: an opportunity or rather a Robbery? – Roma, January 12th, 2008. Invited Plenary Speaker: Agro-biofuels are neither a viable or desirable alternative to oil - so why do they have all this success?*
 90. *Sixth Biennial International Workshop Advances in Energy Studies: Towards an holistic approach based on science and humanity June 29th - July 2nd, 2008 Graz University of Technology, Austria (Organizing Committee) - #1 Special symposium on Jevons' Paradox – oral presentation “The Jevons Paradox: Nested Hierarchical Levels Within Evolving Metabolic Systems”.*
 91. *Scientific Society LIPHE4 – fifth Summer School Multi-Scale Integrated Analysis of Societal and Ecological Metabolism (MuSIASEM) for Participatory Assessment of Sustainability Issues – July 14th – 18th, 2008 - Organizer of the event and lecturer.*
 92. *93rd Ecological Society of America Annual Meeting – Milwaukee, Wisconsin 3rd -8th August 2008 – Symposium on Ecology and Economics: A New Literacy for Sharing Approaches to Achieve Synergy – (Invited Speaker and Panelist): Epistemological therapy for developing useful narratives about the interaction of economic and ecological systems*
 93. *Fifth SAMO Summer School: Sensitivity Analysis of Model Output – European Commission Joint Research Center, Centre IDEAS of the University Ca' Foscari of Venice and Venice International University, Isola San Servolo, Venice Sept. 9th, 2008 (Invited Speaker) – “Models and Sustainability: an epistemological therapy”.*
 94. *ConAccount 2008 Urban Metabolism: measuring the ecological city - Sept. 11-12, 2008 Prague City Hall, the Czech Republic (Key Note Speaker) Linking Societal Metabolism and Urban metabolism: tracking biophysical flows across different scales and dimensions of analysis*
 95. *Creative City 2008 Sustainable City and Creativity: Promoting Creative Urban Initiatives- Sept. 24-26, 2008 Aula Magna Storica Universita' degli Studi Federico II, Napoli (Key Note Speaker) Patterns of Urban Household Metabolism related to demographic change, immigration and increase of the cost of energy*
 96. *Universitat Politecnica de Catalunya – Master in Sustainable Development –October 9th, 2008 – [College of Industrial Engineering of Terrassa \(EUETIT\)](#) and [UNESCO Sustainability Chair](#) – Invited speaker for the Inaugural Lecture: “Complexity and Sustainability”*
 97. *Scientific Society LIPHE4/“Nicholas Georgescu-Roegen” Interdisciplinary Training Research Platform University of Timisoara – sixth Summer School “Multi-Scale Integrated Analysis of Societal and Ecological Metabolism (MuSIASEM) for Participatory Assessment of Sustainability Issues” – October 13th – 17th, 2008 - Organizer of the event and lecturer*
 98. *International Conference Macroeconomic Forecasting and Ecological Economics – October 20, 2008 National Institute of Statistics, Bucharest Romania (Plenary Speaker) Georgescu-Roegen Bioeconomics: A theoretical framework to get a better*

understanding of sustainability issues

99. *VII International ASPO Conference – Peak Oil: from below ground to above ground October 20-21 Barcelona 2008* (Plenary Speaker) A reality check on the feasibility and desirability of biofuels as an alternative to fossil fuels.
100. *NATO Advanced Research Workshop – Energy Option Impact on Regional Security – Mediterranean Institute for Life Sciences - Split, Croatia, June 17-20th, 2009* – invited Plenary speaker: Using the MuSIASEM approach to study metabolic patterns of modern societies.
101. *University of Oxford – Saïd Business School – Post Normal Science – perspectives & prospectives: a reflective workshop – 26-27th June, 2009 St Anne’s College, Oxford.*– Invited Speaker: The Lesson from Biofuel Madness: Post-Normal Science as a Vaccine against the Pandemic of Granfalloon
102. *Bergen Summer Research School 2009: Global Development Challenges Plenary Roundtable: "Climate change, Uncertainty and Complexity" – University of Bergen, June 29th 2009* - Invited Panelist
103. *Sustainable Development Unit of the Research DG's Directorate for Environment and EUROSTAT "Research on Sustainable Development Indicators: Taking Stock of Results and Identification of Research Needs" - Luxembourg, 30/09/09 BECH Building, Ampère Room* – Plenary speaker: Challenges and problems related to EU sustainable development indicators