

Full List of Publications



Mario Giampietro

Books as author or co-authored (3)

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

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

3. 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)

1. 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.

2. Ulgiati, 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.

3. Ulgiati, 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.

4. Ulgiati 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.
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.
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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.
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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.
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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. Siegfert 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 Strukturforchung, 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 Emergy 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.; Mayumi, K.; Martinez Alier, J. "Blending the New Insights from Complex Systems Thinking with Old Insights from Biophysical Analyses of the Economic Process". *Popul. environ.*, N. 2 V. 1.22 p. 97 - 108 (2000) ISSN 0199-0039
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15. 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.
16. 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.
17. 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
18. 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.
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22. 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
23. 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.

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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.
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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.
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