

Avraam Karagiannidis, Dr. Eng., MSc



Avraam Karagiannidis: Assistant Professor on Thermal Processes at the Department of Mechanical Engineering Aristotles University of Thessaloniki (AUTH), Greece (2003-present).

Research interests:

- (a) integrated management and treatment of solid wastes,
- (b) location of noxious and obnoxious facilities, allocation of flows and impact assessment,
- (c) energy conservation and utilization of waste heat,
- (d) multi-criteria decision support on energetic and environmental applications.

Prof. Karagiannidis is head of AUTH-LHTEE's Solid Waste Management group since 1994 and has participated in 66 national and international research projects since 1991. He is the author and co-author of over 200 scientific publications and member of the Hellenic Technical Chamber and the Hellenic Solid Waste Management Association, as well as founding member of the Hellenic waste-to-Energy research and technology council SYNERGIA. He has served as reviewer for international journals and as scientific committee member for international conferences. Particular involvement has developed over the last years in national consulting, technology-support, capacity building and curriculum development activities over various waste management and resource efficiency fields, as well as specific material streams and waste fractions. Recent or still on-going examples include waste-derived fuels, packaging waste, end-of-life tires, organic substrates, e-waste, incineration residues, hospital waste, impacts and restoration of old dumps, as well as biofuel production optimization and design – implementation of pay-as-you-throw schemes for waste management authorities, individual municipalities as well as industries from various sectors.

1. Extended activity profile

Based on its expertise in energy systems and environmental sciences, AUTH-LHTEE and its solid waste management group compiles and proposes innovative solutions in various domains associated with industrial production. In the last years, the implementation of Integrated Product Policy has become a major activity area. In that direction, the application of Life Cycle Assessment/Costing (LCA/LCC), Material Flow Analysis and Ecodesign is an obvious option for enterprises wishing to establish production lines and consumption patterns of environmentally friendly products that will contribute to the minimisation of waste. Both basic and applied research is carried out and qualified support is provided in both pre- and post-consumer solid waste management, with major areas being optimized waste collection, treatment and disposal; restoration of contaminated land; layout and implementation of solid waste related policies aiming at avoidance, reduction, reuse, recycling, recovery and re-integration (multi-R principle); design for disassembly and the environment. AUTH-LHTEE also has a strong involvement in research activities related to waste management economics. Studying externalities, as they occur due to improper practices, is a prerequisite in order to internalise them into rational cost structures of solid waste management. The tools used for this purpose are material flow analysis,

input-output modelling, mixed-integer programming, systemic analysis, market research for recycled goods and appropriate technologies, SWOT and PEST analyses, scenario simulations, multi-criteria analysis of alternative solutions and LCA/LCC. In terms of contaminated-site and derelict-land restoration, work is undertaken in a large extent on waste related issues (restoration of both small-sized wild dump, as well as of large-size semi-controlled landfills, with eventual resource recovery) as well as with quarry rehabilitation and with contaminated land management in a more generic sense. Next, significant work is on-going on the rational waste management in the industrial and commercial sector with emphasis on the design of waste avoidance and processing systems and on pricing policies for environmental services. Part of the research work in this field is the optimisation of managing dedicated waste streams. Last but not least, Waste-to-Energy is a field with significant past, present and future focus. On-going and future research plans in solid waste management include extending the work of the integrated energetic utilisation of waste materials with emphasis on renewable energy, biofuels and a new emerging taxonomy in the related reverse logistics chain, through a chain of processes including combustion, pyrolysis, gasification (also in multi-stage modules), as well as (both process and landfill) anaerobic digestion (on an urban, agricultural and industrial scale) and industrial (co-)combustion of various waste derived fuels, both process and external. It is also intended to conduct research and support demonstrations towards assessing the external costs of solid waste management in Greece, with special emphasis on the potential of waste-to-energy options and the related Kyoto implications, as well as on waste minimisation in the industrial sector, biofuels and biorefineries, together with associated advanced financial tools. Further information on <http://aix.meng.auth.gr>.

2. Research projects

2.1. Selected project list (from the last 5 years)

| Title/ description of the study/ activity | Year | Awarding Authority |
|--|-------------|--|
| 1. Integration of waste management tools into specific settings of European and Asian communities (ISTEAC) | 2003-2006 | Europeaid Office, AUNP (ASEAN-EU University Network Programme) |
| 2. Hellenic Network for LCA on consumer electronics (HEL CARE) | 2003 | Hellenic Ministry of Development |
| 3. A GIS for integrated urban waste management on a local and regional level (GELORE) | 2003-2006 | Hellenic Ministry of Development |
| 4. Development of an integrated methodology for monitoring, replacement, deactivation, sanitation and restoration of wild waste disposal sites (IDRUS) | 2004-2007 | Hellenic Ministry of Education |
| 5. Dental Waste Management at university clinics and private units (DAST) | 2005-2006 | Hellenic Ministry of Education |
| 6. Compilation of a biomass inventory in Central Macedonia for potential energy use (BIOMEL) | 2007-2008 | MEL Macedonian Paper Mills S.A. |
| 7. Overall mapping of physical flows and stocks of resources to forecast waste quantities in Europe and identify life-cycle environmental stakes of waste prevention and recycling (FORWAST) | 2007-2009 | DG Research |
| 8. Studying a photovoltaics units in Sidirokastro, Serres | 2006-2008 | Sidirokastro Photoenergy S.A. |

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| 9. Investigating the promotion potential of pure biofuels in the Hellenic market (BIODIESEL) | 2008 | Biodiesel S.A. |
| 10. Compiling an integrated methodology for vulnerability assessment and risk management of vital supply lines, infrastructures and critical buildings (SRM-Life) | 2003-2006 | Hellenic Ministry of Development |
| 11. Environmental impact assessment from the July 2006 landfill fire in Tagarades, Thessaloniki | 2006-2007 | Association of Local Authorities of the Greater Thessaloniki Area |
| 12. Environmental characterization of incineration residues from infectious medical wastes | 2008 | Apotefrotiras S.A. |
| 13. Risk assessment of an old inert waste disposal site according to the contemporary Hellenic legislation | 2007 | MEL Macedonian Paper Mills S.A. |
| 14. Environmental management of bottom ash from municipal solid waste incineration (BAMBI) | 2008-2009 | Intrakat S.A. |
| 15. Developing an integrated methodology for restoring inert quarries and mines by valorizing solid wastes (ECOLAN) | 2005-2007 | Hellenic Ministry of Education |
| 16. Mapping of state-of-the-art in relation to packaging waste management in Greece for assessing the feasibility of a new collective system (PACKGR) | 2006-2008 | Landbell A.G. |
| 17. Waste Analysis of the Serres General Hospital | 2007-2008 | Serres General Hospital |
| 18. Waste Analysis of the Thessaloniki Ippokrateio General Hospital | 2008 | Thessaloniki Ippokrateio General Hospital |
| 19. Waste Analysis and Environmental Impact Assessment of the Thessaloniki ACHEPA General Hospital | 2008 | Thessaloniki ACHEPA General Hospital |
| 20. European urban waste management cluster (EUWMC) | 2003-2005 | DG Environment |
| 21. Serres landfill planning | 2003 | Municipality of Strimoniko, Prefecture of Serres |
| 22. Tagarades aftercare study | 2004-2005 | Ehedoros S.A. |
| 23. Calculation of the recycling fee for various WEEE in Greece | 2004-2005 | Recycling of Appliances S.A. |
| 24. Investigation, determination and promotion of innovative entrepreneurship opportunities in the recovery of end-of-life tires (TIREGR). | 2007-2008 | Hellenic Ministry of Development |
| 25. Financial tools for fair charging of waste fees (FESA). | 2006-2009 | Hellenic Ministry of Development |
| 26. Thematic network for the energetic utilization and thermat treatment of | 2006- | Research Committee of |

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| solid and liquid wastes (NEUTRA). | 2007 | the Aristotle University |
| 27. Thematic network for energy technology (ENTEX). | 2006-2007 | Research Committee of the Aristotle University |
| 28. Safe Management of Mining Wastes and Waste Facilities (SAFEMANMIN) | 2007-2008 | DG Research |
| 29. Developing practical guidelines for a progress observatory of implementing projects on RES and wastes / wastewater (DEPOIR) | 2007-2008 | Hellenic Ministry of Development |
| 30. Developing practical guidelines for preparing feasibility studies on producing renewable energy from organic wastes and biomass at the example of the Vietnamese island of Phu Quoc (RENEW) | 2005-2007 | ASEAN Energy Facility Programme |
| 31. Variable-rate-pricing based on Pay-as-you-throw, as a tool for urban waste management (PAYT) | 2003 | DG Environment |
| 32. Developing a waste management system on the Polluter-Pays principle under EU and Mediterranean peculiarities and conditions (PAYTMED) | 2004-2006 | Hellenic Ministry of Development |
| 33. Developing and implementing PAYT systems in Greece, Esthonia and Cyprus (HECPAYT) | 2009-2011 | LIFE+ |
| 34. Ecological and aesthetic restoration of the Efkarpia waste disposal site (ESTRADA) | 2003-2007 | Hellenic Ministry of Development |
| 35. Developing a holistic methodology for monitoring, decommissioning, deactivation, sanitation and restoration of old wild disposal sites (REDIS) | 2003-2007 | Hellenic Ministry of Education |
| 36. Social and professional reinstatement of handicapped people and Hellenic gypsies via a WEEE recycling programme in Greece (PRUWE). | 2005-2008 | Hellenic Ministry of Labour, EQUAL Community Initiative |
| 37. Sustainable green fleets (SUGRE) | 2006-2008 | Altener (Intelligent Energy for Europe). |
| 38. Public transport means and their accessibility by people with disabilities (PTAccess) | 2007-2008 | DG TREN |
| 39. Curriculum development for solid waste management in Africa and Oceania (CODWAP) | 2009-2011 | Europeaid Office, EDULINK |

2.2. Brief description of some selected projects

A brief description of some of the most interesting projects from the above list in which Dr. Karagiannidis was involved during the last decade, is provided in the following paragraphs.

2.2.1. Waste Charging Policy According to the Pay-As-You-Throw Principle (PAYT)

This project, funded by FP6, developed a Pay As You Throw (PAYT) handbook of international range integrating various implementation concepts and bridging various institutional, technical and social gaps on this critical solid waste management field. It also studied ways for overcome major problems that may appear if the implementation mechanism is not carefully designed and efficiently adjusted to local conditions and peculiarities. PAYT systems come in various forms, the more common ones being either weight- or volume-based. Within the

project, simulation scenarios for Greece were compiled and evaluated by LHTEE, whereas a series of both EU- and nationally-funded follow-up projects led to the first pilot Hellenic implementation (in municipality of Elefsina), to developing various related policy support tools and to also operationalizing the zero-waste concept.

2.2.2. Geographic Information Systems for Integrated Solid Waste Management at Local and Regional Level (GELORE)

This Hellenic-Canadian project utilised various Geographic Information Systems (GIS) capabilities to provide a flexible decision support tool for urban waste management planning in the Region of Central Macedonia, whereas a number of follow-up projects explored this concept further in other areas, waste streams and waste-to-energy. In GELORE, first locally, optimization of urban waste collection was addressed; suitable GIS platforms were developed for selected municipalities and various scenarios for bin location and waste collection were compiled and evaluated. Regionally, locating new facilities for urban waste management, treatment and disposal, as well as allocating waste flows from various producers and of residues from various facilities was also studied; for this, mixed integer, linear models were developed and efficient solution algorithms were customised and incorporated in the system.

2.2.3. Developing practical guidelines for an observatory center on the progress of implementing projects on renewables and waste/wastewater (DEPOIR)

RES and waste(water) management infrastructure are critical for environmental and socioeconomic development but often meet barriers leading to serious setbacks. DEPOIR exploited not only biomass- fired power plants, geothermal exploitation facilities, photovoltaic and wind energy power stations but also sanitary landfills, transfer stations, waste-to-energy plants, mechanical-biological treatment facilities and wastewater treatment plants. The aim was the preparation of practical guidelines for an observatory centre on the progress of implementing such projects under a life-cycle approach. Various information segments were determined and extensively mined from existing projects, whereas social and economic impacts on local scale were also studied,. Management aspects that cause setbacks in the progress were identified and categorized, whereas mitigation pathways were also compiled.

2.2.4. Integration of Solid Waste Management Tools into Specific Settings of European and Asian Communities (ISTEAC)

This EU project, coordinated by LHTEE, contributed to tailored integration of available know-how for rationalizing Solid Waste Management (SWM) and fostering co-operation between European and Asian Universities. LHTEE's involvement was followed-up by a vice-chairmanship in Task Group 'Developing Countries' of International Waste Working Group and by 2 other EU projects on recycling and waste-to-energy in insular Vietnamese areas and Africa/Oceania respectively. ISTEAC's objective was to study specific tools for waste minimization and to examine related local cultural and socio-economic characteristics. Field experiments on composting and paper recycling were set up in Vietnam and the Philippines, with focused workshops and study visits providing training to participants and an exchange of cultural and scientific information. ISTEAC received an award of excellence by the Philippino government in 2005.

2.2.5. Integrated Methodology for Monitoring, Decommission, Sanitation and Restoration of Uncontrolled Sites for Solid Waste Disposal (IDRUS)

The overall IDRUS objective, funded by the Greek Ministry of Education, was an integrated methodology for monitoring, reclamation, rehabilitation, restoration and remediation of uncontrolled waste disposal sites in the framework of integrated waste management. Environmental impacts associated to uncontrolled waste disposal sites were evaluated by calculating the toxic emissions in the air, soil and water. This data was then used as input for estimation of environmental impacts and evaluation of different management and aftercare scenarios of uncontrolled waste disposal sites. The assessment and evaluation of alternative restoration plans via multi-criteria analysis contributed to the novelty and innovation of the IDRUS approach, which was further enriched within 2 other parallel nationally funded projects via extensive field surveys and in-situ data collection to over 600 such sites.

2.2.6. Social and Professional Reinstatement of Handicapped People and Gypsies through Reuse and Recycling of Waste Electric and Electronic Equipment in Greece (PRUWE)

Main objective of PRUWE, supported by the EU EQUAL initiative, was the development of social services for reuse and recovery of Waste Electrical and Electronic Equipment (WEEE) by people with disabilities and Gypsies. Initially, procedures were developed for developing social services for WEEE reuse and recycling, by including the 2 aforementioned target groups from Thessaly and North Aegean, whereas occupational and social de-marginalization of these groups was addressed in the frame of sustainable WEEE management. Compilation of standards and requirements for developing social enterprises for WEEE recycling was performed. For each enterprise a pilot preliminary stage and a business plan were compiled. PRUWE thus also contributed to the support of the official national system for alternative WEEE management by significant segments of the informal sector.

2.2.7. Sustainable Green Fleets (SU:GRE)

SU:GRE focused on commercial/captive fleets to promote and support their conversion to alternative propulsion and their energy efficient use. LHTEE organised validation of training/briefing materials, supported training/briefing and organised site visits for other fleet owners. A knowledge hub, implemented as an internet-based communication and information platform, tools supporting the procurement and localisation of refuelling sites and a support desk were implemented. LHTEE analysed in-depth country-specific conditions regarding fleet conversion, defined and organised the main steps for the dissemination campaign, contributed to the compilation of a dissemination handbook based on numerous examples of best practices and finally produced the SU:GRE evaluation handbook. SU:GRE's acceptance by biodiesel producers and users in Greece led to a set of follow-up activities focusing on waste cooking oils and waste-to-wheel concepts.

2.2.8. Overall Mapping of Physical Flows and Stocks of Resources to Forecast Waste Quantities in Europe and Identify Life-Cycle Environmental Stakes of Waste Prevention and Recycling (FORWAST)

The EU FP6's FORWAST project provided an inventory of historically cumulated physical stock of materials in EU-27 and forecasted expected amounts of waste generated, per resource category, in the next 25 years. Furthermore, an assessment of the life-cycle-wide environmental impacts from different scenarios of waste prevention was implemented concerning recycling and treatment / incineration in the EU-27. Initially, a generic model for material flows, stocks and emissions was designed and applied, based on Material Flow Analysis. This model was an environmentally extended, physical, quasi-dynamic input-output model, which combined with a robust method of Material Flow Analysis, guided the mining of new data, which was the main focus of the project. Data mining took place as a combination of "in-depth" studies in selected countries where high-quality statistics are available, coupled with an EU-wide effort consolidating and calibrating different statistical and technical data sources. FORWAST was structured as follows:

- Provide the overall model for calculating material stocks and waste quantities.
- Define the Material Flow Analysis tool to picture flows, stocks and emissions.
- Obtain EU-27 data.
- Provide the scenario basis for forecasting and technology descriptions.
- Provide a 25-year forecast of cumulated physical stocks and waste generation for EU-27.

FORWAST's policy relevance was particularly strengthened, whereas a new insight into Life Cycle Thinking and more confidence in using environmental indicators in natural resources and waste management policies was obtained.

2.2.9. Safe Management of Mining Waste and Waste Facilities (SAFEMANMIN)

Mining waste is among the largest waste streams in the European Union and it ranks first in the relative contribution of wastes in many European countries. The EU FP6's SAFEMANMIN project collected and reviewed information that operators and environmental authorities require for the implementation of the Directive 2006/21/EC on the management of waste from the extractive industries and to disseminate this knowledge as widely as possible. It addressed in particular (a) the classification of waste facilities with respect to the possible consequences of an accident, (b) waste characterisation and (c) the criteria for determining the classification of waste facilities. Project activities were structured as follows:

- Review of methods for the characterisation of mining waste.
- Collection of information on risk assessment of mining waste facilities, with emphasis on old and abandoned mining facilities
- Review of techniques for prevention and abatement of pollution generated by mining wastes.

- Development of a decision support tool for minimising the environmental impact of the mining industry. SAFEMANMIN also included training and dissemination activities. LHTEE presented this project at various international events and established constructive contacts with other groups working longer in this field. Industrial interest and feedback was significant including peer-reviewing of all deliverables and some very constructive debates at EU level, indicating the contemporary turning point of the mining industry at the EU and worldwide and the major osmosis with SAFEMANMIN.

3. Selected publications

3.1. Papers in Journals

1. Moussiopoulos N., Proyou A., Karagiannidis A. and Nakos C. (1995) 'Impacts of Thessaloniki Metro on Urban Air Quality', *Technika Chronika B*, 15, Nr 1-2, pp. 19-27.
2. Karagiannidis A. (1995) 'Burners of Domestic Heating Boilers: A Measurement-based Analysis Approach aiming at quantifying Correlations among the Basic Parameters of Operation', *Energy Conversion and Management*, 37, No.4, pp. 447-456.
3. Karagiannidis A. and Moussiopoulos N. (1996) 'MARWELOUS: A model generator for regional waste management', *Studies in Locational Analysis*, 9, June, pp. 67-68.
4. Karagiannidis A., Papakosma A. and Moussiopoulos N. (1996) 'A location-allocation procedure for composting municipal solid wastes, applied for the Prefecture of Thessaloniki', *Journal of the Institute of Middle East Studies (IMSAM)*, 1, March, pp. 117-127.
5. Karagiannidis A. and Moussiopoulos N. (1997) 'Application of Electre III for the Integrated Management of Municipal Solid Wastes in the Greater Athens Area', *European Journal of Operations Research*, 97, pp. 439-449.
6. Moussiopoulos N., Sahn P., Karatzas K., Papalexioiu S. and Karagiannidis A. (1997) 'Assessing the Impact of the new Athens Airport to Urban Air Quality with Contemporary Air Pollution Models', *Atmospheric Environment*, 31, 10, pp. 1497-1511.
7. Moussiopoulos N., Sahn P., Karatzas K., Papalexioiu S. and Karagiannidis A. (1997) 'Analysis of the Impact of the new Athens Airport on Urban Air Quality with Contemporary Air Pollution Models', *International Journal of Environment and Pollution*, 8, Nr 3-6, pp. 427-435.
8. Karagiannidis A. and Moussiopoulos N. (1998) 'A model generating framework for regional waste management taking local peculiarities explicitly into account', *Location Science*, 6, pp. 281-305.
9. Perkoulidis G., Karagiannidis A. and Moussiopoulos N. (1999) 'Applying mixed-integer linear programming for the evaluation of alternative integrated management schemes for solid wastes in the Region of Western Macedonia, Greece', *Studies in Regional and Urban Planning*, 7, pp. 75-90.
10. Salonikidou A., Moussiopoulos N. and Karagiannidis A. (1999) 'Geographical registration of the present management system for solid wastes in the Prefecture of Thessaloniki, Greece', *Journal of the Institute of Middle East Studies (IMSAM)*, 4, July, pp. 48-58.
11. Salonikidou A., Karagiannidis A. and Moussiopoulos N. (2000), 'Inventory of disposal sites for municipal wastes in the Thessaloniki Prefecture', *Technika Chronika B*, 20, Nr 1-2, pp. 17-29.
12. Karagiannidis A., Perkoulidis G. and Moussiopoulos N. (2001) 'Multi-objective ranking of pareto-optimal scenarios for regional solid waste management in Central Greece', *Operational Research*, 1, Nr 3, pp. 225-240.
13. Karagiannidis A., Xirogiannopoulou A. and Moussiopoulos N. (2002) 'Planning Framework and Case-study Analysis for Variable-Rate Pricing of Urban Waste Collection', *Technika Chronika IV*, Nr 1-2, pp. 7-18.
14. Karagiannidis A., Perkoulidis G., Moussiopoulos N. and Chrysochoou M. (2004) 'Facility location for solid waste management through compilation and multicriterial ranking of optimal decentralized scenarios. A case study for the Region of Peloponnesse in Southern Greece' *The Journal of Engineering Research*, 1, Nr 1, pp. 7-18.
15. Karagiannidis A., Xirogiannopoulou A., Perkoulidis G. and Moussiopoulos N. (2004) 'Assessing the collection of urban solid wastes: A step towards municipality benchmarking', *Water, Air and Soil Pollution: Focus*, 4, Nr 4-5, pp. 397-409.
16. Karagiannidis A., Xirogiannopoulou, A. and Moussiopoulos, N., 2005, Studying the applicability of variable-rate pricing in solid waste management in Greece, *International Journal of Environment and Pollution*, 23, Nr 2, pp. 189-204.

17. Karagiannidis A., Perkoulidis G., Papadopoulos A., Moussiopoulos N. and Tsatsarelis T. (2005) 'Characteristics of wastes from electric and electronic equipment in Greece: Results of a field survey', *Waste Management and Research*, **23**, pp. 381-388.
18. Karagiannidis A., Xirogiannopoulou A. and Moussiopoulos N. (2006) 'On the Effect of Municipality Size and Characteristics on the Formulation of Municipal Solid Waste Charging Policy by Local Authorities', *Waste Management*, **26**, pp. 110-122.
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20. Tchobanoglous G., Karagiannidis A., Gadjji M., Leverenz H. and Antonopoulos I.S. (2006) 'Sustainable waste management at special events using reusable dishware: The example of Whole Earth Festival at the University of California in Davis', *Fresenius Environmental Bulletin*, **15**, 8a, pp. 822-828.
21. Tsatsarelis T., Antonopoulos I., Karagiannidis A. and Perkoulidis G. (2007) 'Open dumps in the Hellenic prefecture of Laconia: Statistical analysis of characteristics and restoration prioritization on the basis of a field survey', *Waste Management and Research*, **25**, pp. 417-425.
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25. Kasassi A., Rakimbei P., Karagiannidis A., Zabaniotou A., Tsiouvaras K., Nastis A. and Tzafeiropoulou K. (2008) 'Soil contamination by heavy metals: Measurements from a closed unlined landfill', *Bioresource Technology*, **99**, pp. 8578-8584.
26. Karagiannidis A., Xirogiannopoulou A. and Tchobanoglous G. (2008) 'Full-cost accounting as a tool for the financial assessment of Pay-As-You-Throw Schemes: A case study for the Panorama municipality, Greece', *Waste Management*, **28**, pp. 2801-2808.
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28. Karagiannidis A., Wittmaier M., Langer S., Bilitewski B. and Malamakis A. (2009) 'An integrated feasibility assessment framework for energy recovery from solid waste organics in developing countries', *Renewable and Sustainable Energy Reviews* (accepted for publication: 25/9/2008, in press).
29. Papaioikonomou K., Kipouros S., Kungolos A., Somakos L., Aravossis K., Antonopoulos I. and Karagiannidis A. (2009) 'Marginalised social groups in contemporary WEEE management within social enterprises investments: A study in Greece', *Waste Management*, **29**, 5, pp. 1754-1759.
30. Zotos G., Karagiannidis A., Zampetoglou S., Malamakis A., Antonopoulos I.-S., Kontogianni S. and Tchobanoglous G. (2009) 'Developing a holistic strategy for integrated waste management within municipal planning: Challenges, policies, solutions and perspectives for Hellenic municipalities in the zero-waste, low cost direction', *Waste Management*, **29**, 5, pp. 1686-1692.
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32. Zygouras M., Karagiannidis A. and Malamakis A. (2009) 'Construction and demolition waste processing in Athens, Greece: A pilot demonstration', *International Journal of Environment and Waste Management*, **3**, 1/2, pp. 177-192.
33. Rakimbei P., Kostopoulou P., Tsiouvaras K. and Karagiannidis A. (2009) 'Simulating the water balance in an old non-engineered landfill for optimizing plant cover establishment in an arid environment', *Desalination* (accepted for publication, in press).
34. Karagiannidis A. and Kasampalis T. 'Resource recovery from end-of-life tires in Greece: A field survey, state-of-art and trends', *Waste Management and Research* (submitted 28.07.2008, accepted for publication, in press).

35. Papageorgiou A., Barton J.R. and Karagiannidis A. 'Assessment of the climate change impact of technologies used for energy recovery from municipal solid wastes', *Journal of Environmental Management* (submitted 10.08.2008, accepted for publication, in press).
36. Tsatsarelis T. and Karagiannidis A. (2009) 'Estimation of future methane production from Hellenic landfills', *Global Nest* (submitted 15.09.2008, accepted for publication, in press).
37. Karagiannidis A., Papageorgiou A., Perkoulidis G., Sanida G. and Samaras P. (2009) 'A multi-criteria assessment of scenarios on thermal processing of infectious hospital wastes', *Waste Management* (accepted for publication, in press).

Still under review:

38. Karagiannidis A., Theodoseli M., Malamakis A. and Bilitewski B. 'Decentralized aerobic composting of urban solid wastes: Some lessons learned from Asian-EU cooperative research', *Global Nest* (submitted 30.11.2007).
39. Karagiannidis A., Kasampalis T., Theodoseli M., Fontaras G., Tegos K. and Samaras Z. 'Paving the way for waste-derived biofuels in the transport sector: Market evolution in Greece and its environmental sustainability', *Waste Management* (submitted 29.07.2008, under revision).
40. Iakovou E., Karagiannidis A., Vlachos D., Toka A. and Malamakis A. 'Waste Biomass Supply Chain Networks for Energy Production: A Conceptual Decision-Making Modeling Framework', *Biomass and Bioenergy* (submitted 02.09.2008).
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42. Themelis N., Karagiannidis A., Kalogirou E., Psomosopoulos K., Bourka A., Papageorgiou A. and Malamakis A. 'Waste to energy in the USA: A review of the current status', *Technika Chronika B* (submitted).

3.2. Books

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2. Reichenbach J., Bilitewski B., Karagiannidis A., Sauer P., Schiller G., Deilmann C., Leone F., Abert J., Xirogiannopoulou A., et al. (2004) 'Handbook on the implementation of Pay-As-You-Throw as a tool for urban waste management', Vol. 39 'Beitraege zu Abfallwirtschaft/Altlasten' (ISBN: 3-934253-32-6).
3. Kungolos A., Aravossis K., Karagiannidis A. and Samaras P., eds (2007), Proceedings of 1st International Conference on Environmental Management, Engineering, Planning and Economics (1st CEMEPE/SECOTOX Conference), Skiathos, Greece, Volumes I-IV, 3300 pp.
4. Kungolos A., Aravossis K., Karagiannidis A. and Samaras P., eds (2007), Proceedings of 2nd International Conference on Environmental Management, Engineering, Planning and Economics (2nd CEMEPE/SECOTOX Conference), Mykonos, Greece, CD-ROM version.

3.3. Conference papers

1. Zellner K. and Karagiannidis A. (1994) 'Material and Energetic Utilisation of Plastics from Domestic Waste - The Situation in Germany', in: *Restoration and Protection of the Environment II*, 24-26 August, Patras/Greece, Proceedings (editors: A.C. Demetracopoulos, C.D. Hadjitheodorou and G.P. Korfiatis, University of Patras Press), pp. 328-335 (oral presentation).
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