

SUSTAINABLE CONSUMPTION AND PRODUCTION IN THE TRAVEL AND TOURISM INDUSTRY: PROPOSAL OF A LIFE CYCLE THINKING TOOLBOX

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Convegno della Rete Italiana LCA***

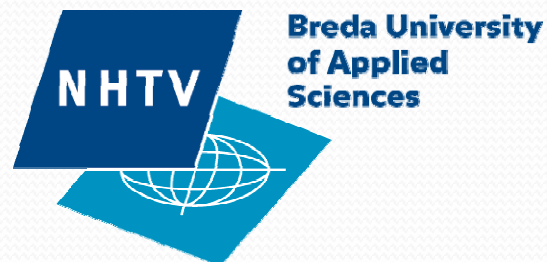




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Introduction

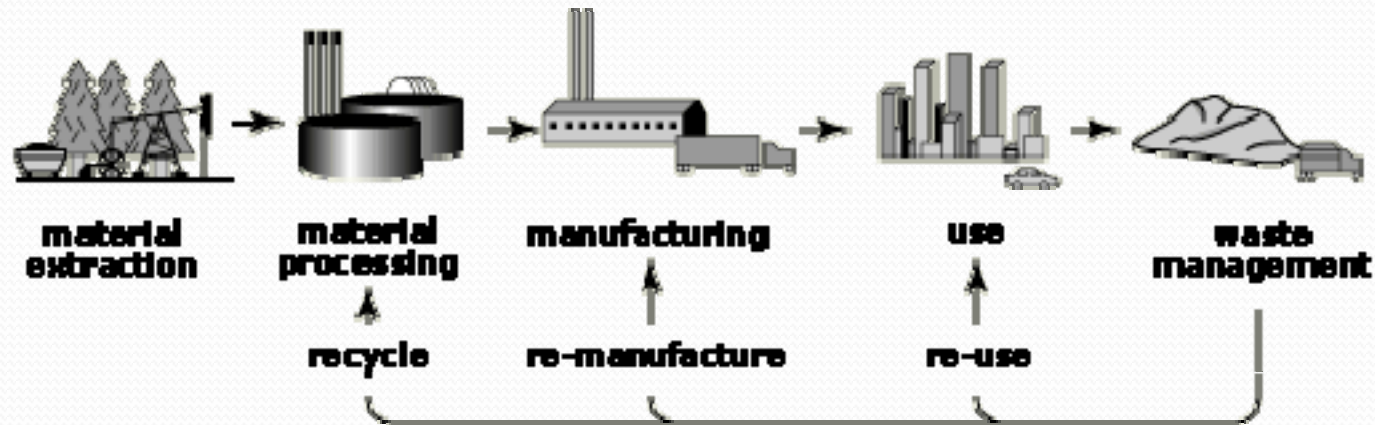
General goal and research questions

Key tasks and results

Scientific papers

Impact

Life Cycle Thinking



Assessment: Life Cycle Assessment (ISO 1404X:2006)

Design: Life Cycle Design, Ecodesign, Design for Environment (ISO/TR 14062:2002)

Labelling: Environmental labelling and declaration (ISO 1402X)

Tourism



One of the principal sectors of the world economy

Tourism currently contributes :

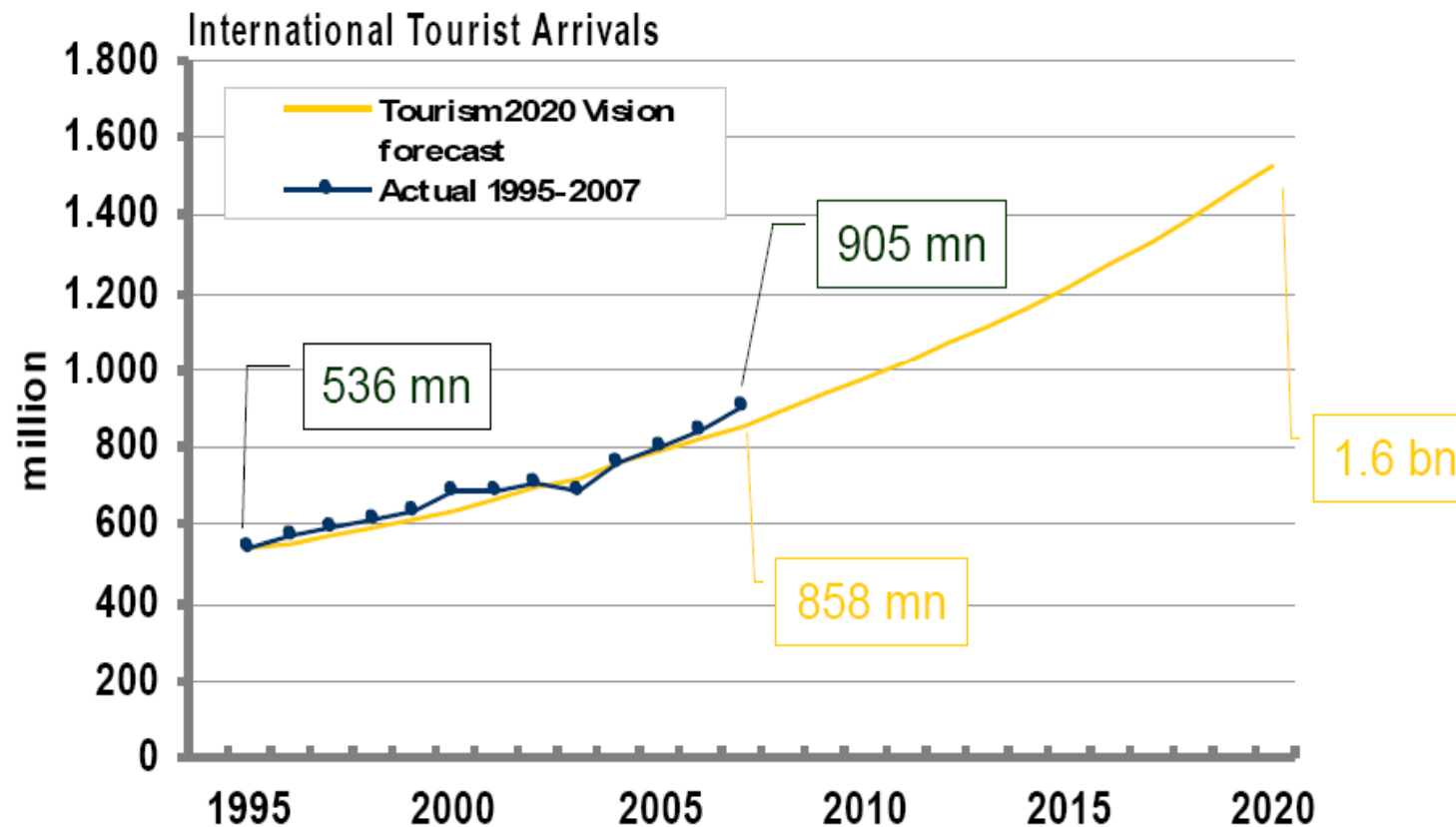
- 4% of the EU's gross domestic product (GDP)
(CORDIS-European Commission, 2009)
- about 10% of the Italian GDP
(World Travel & Tourism Council, <http://www.wttc.org>)



Tourism, by definition, strongly affects many industries, especially transport: tourism cannot take place without mobility

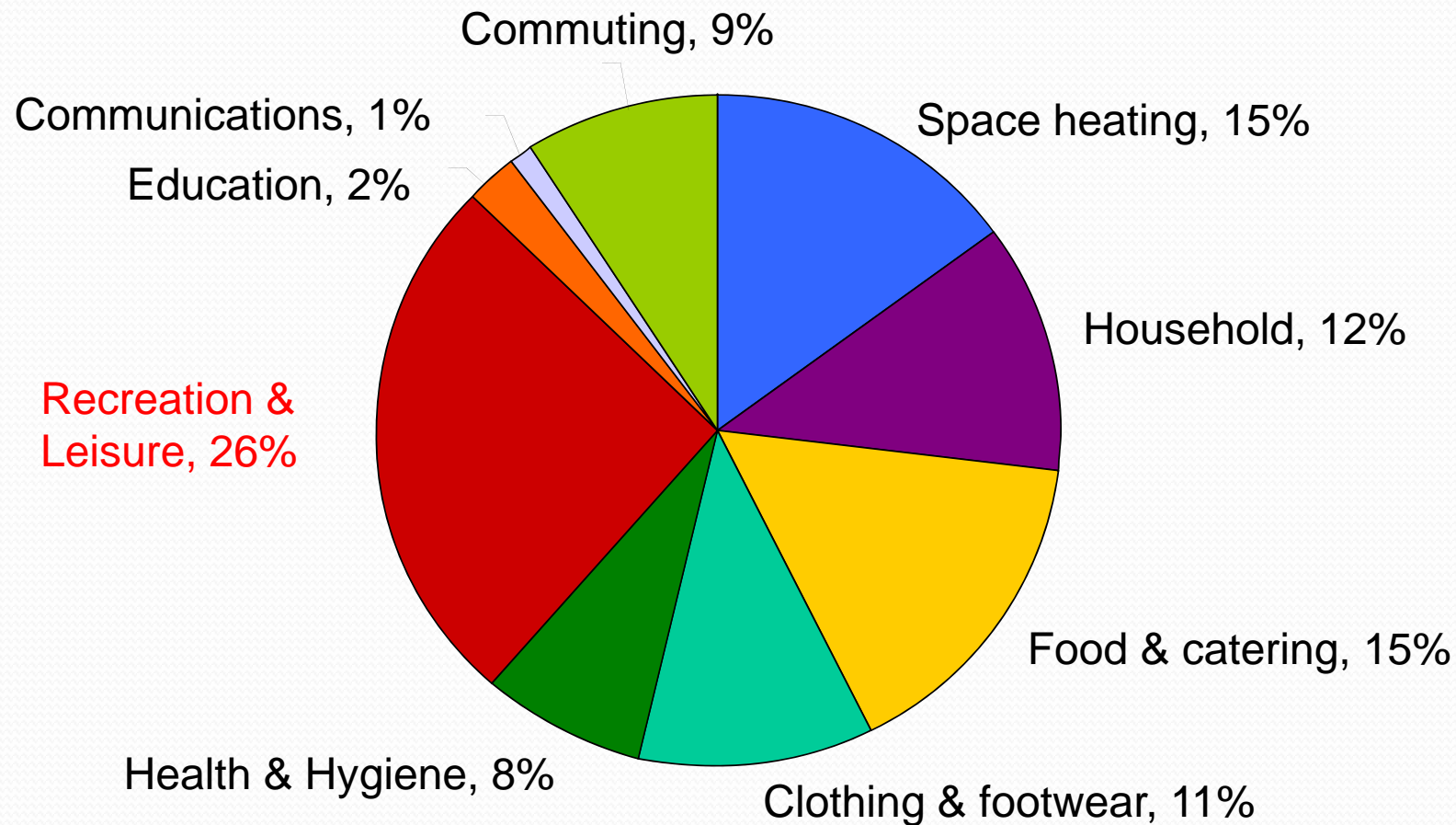
Actual trend vs. Tourism 2020 Vision Forecast

World



L. Cabrini, Sustainability, Competitiveness and Identity in Tourism Destinations, 2nd Intl Conf Sustainable Tourism, Riccione, 28 Nov. 2008

CO₂ emissions allocated to high level functional uses for an average UK household (2004)



Reference

Druckman, A. and T. Jackson (2009). "The carbon footprint of UK households 1990-2004: a socio-economically disaggregated, quasi-multiregional input-output model." *Ecological Economics* 68 (7).

General goal

Development of a LCT tool box made up of instruments and related methodological approaches for the travel and tourism sector





Research questions

Why LCA has been implementing in such a limited manner so far in the travel and tourism industry so far? What are the strengths and weaknesses of LCA in this sector?

What role has LCA in the research field of “Sustainable Tourism”?

How can tourist products be defined in relation to LCA principles?

What LCA methodological approaches can be identified for this sector?

How can quality and environmental requirements be effectively combined in QFD-based eco-design tools for services?

What environmental instruments and initiatives are currently supporting the application of the European Sustainable Consumption and Production (SCP) Action Plan in the travel and tourism industry? What are their key characteristics and how do they stand in relation to LCA principles? How can these instruments be combined in a general framework capable to render this industry low carbon and more sustainable from an environmental viewpoint?

Project tasks

- Critical review of LCA case studies
- LCA case study on hotel services
- Development of LCA methodological approaches
- Development of a new LCT-based framework for sustainable consumption and production



Gruppo di Lavoro Servizi
Turistici



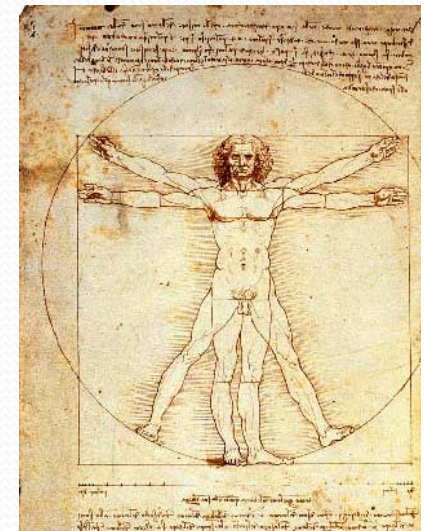
Tourism LCA: a critical review of case studies

Limited number of assessments:

- 5 hotels (Tontodonati 2002; Mazzoni 2004; Floridia 2007; König et al. 2007; De Camillis et al. 2008),
- 4 entire holidays (Sisman 1994; UK CEED 1998; Chambers 2004; Corsico 2007)
- 1 whole tourism sector (Kuo and Chen 2009).

Criteria:

1. Methodology type
2. Tourist product
3. Objectives
4. Functional unit
5. Data quality
6. Impact Assessment Methods
7. Strengths and weaknesses





Key methodological issues

Tourist product: product definition

System boundaries definition

Data availability and data quality: Lack of sector-specific LCI datasets

Impact assessment: how to deal with local environmental issues

LCA case study

Hotel Duca d'Aosta, three-star hotel located in Pescara, Italy

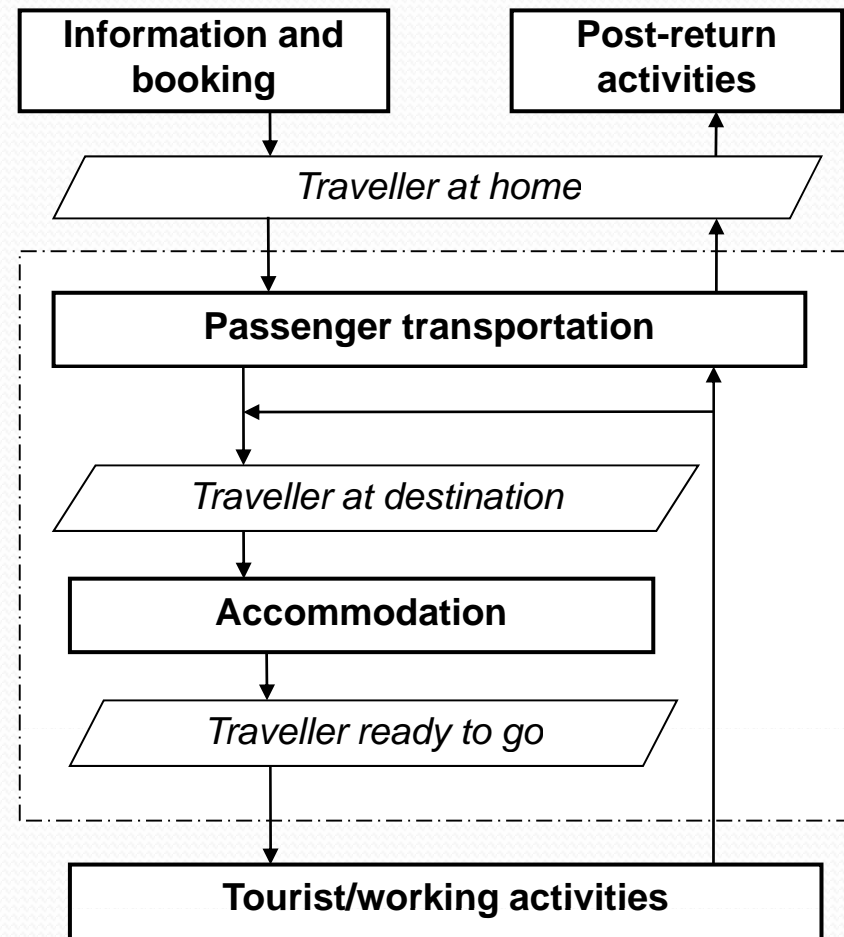
General objective: assess the environmental issues along the life cycle in order to improve the environmental performance

Functional unit: an overnight stay of one guest with breakfast and car-parking services included

Allocation: avoided through system expansion and subdivision



System boundaries: “from door to door”



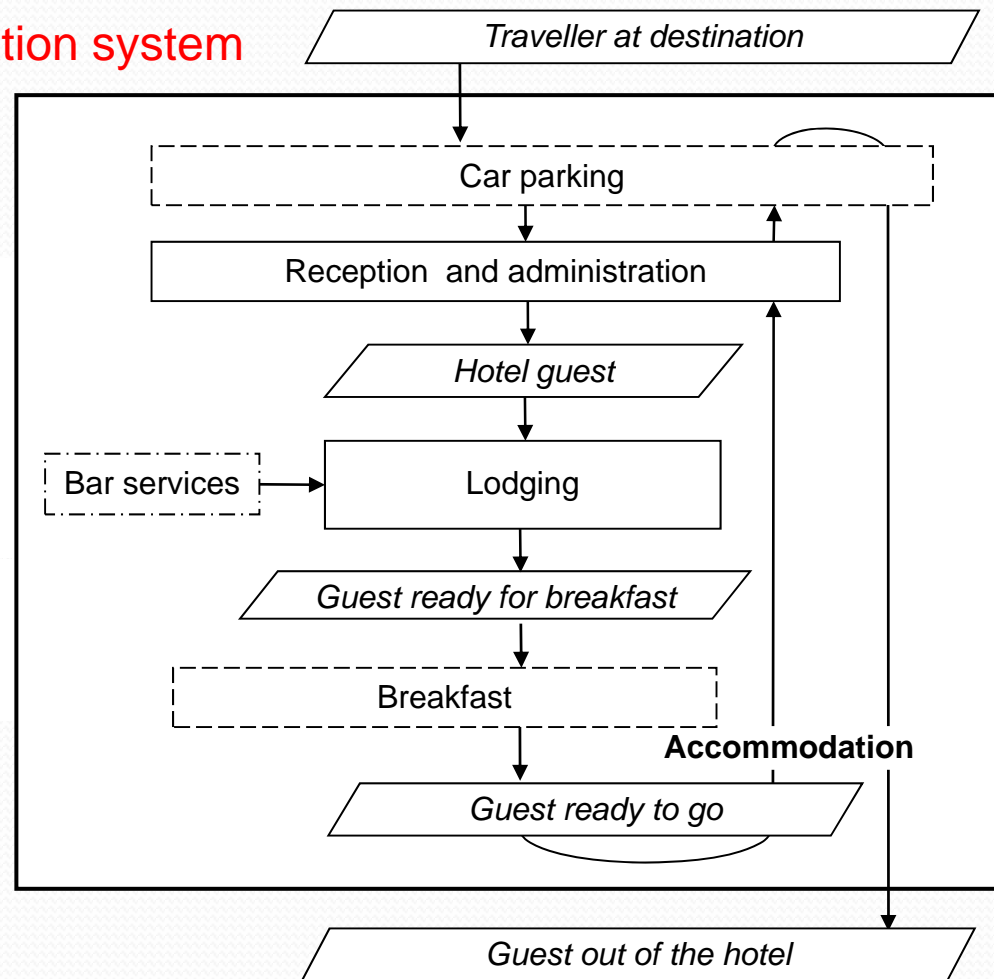
The accommodation system

INPUTS

- Power
- Thermal energy
- Cleaning
- Laundry
- Hotel amenities
- Paper
- Food and beverage
- Water

OUTPUTS

- Waste
- Waste water
- Airborne emissions

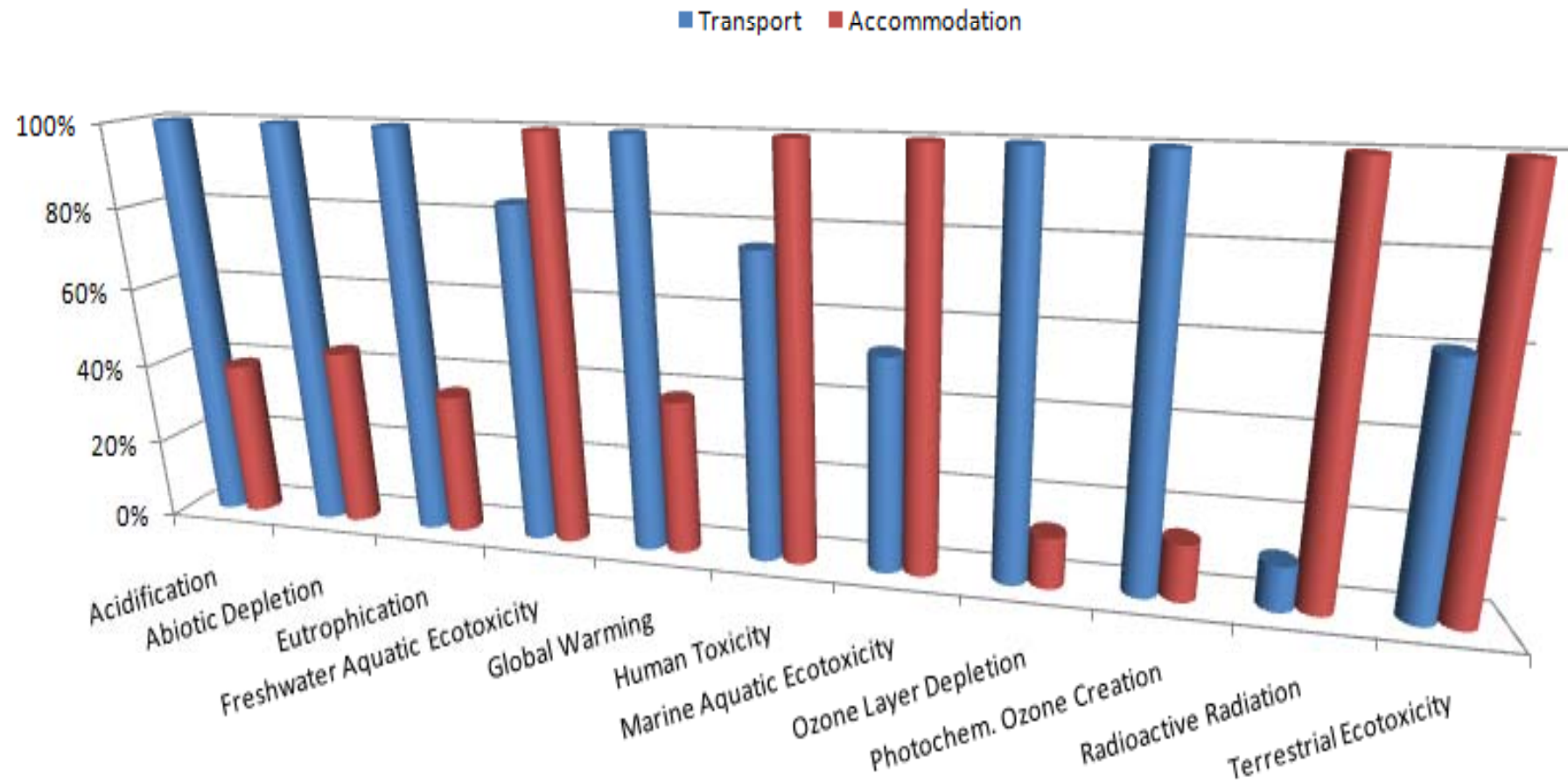


Legenda

 Optional process

 Process not included

LCA results: characterization



Hot spots

- petrol and diesel car transport
- aircraft transport
- energy production (power and thermal energy)
- disposal processes

Improvement actions

- directing hotel guests towards more eco-friendly transport solutions
- switching to supplies of energy from renewable sources
- separate collection of waste (not only from the hall, but also from rooms)
- selection of suppliers (i.e. laundry, cleaning, food) with a better environmental performance

NB: specific improvement scenarios should be assessed before any implementation



LCT methodological approaches

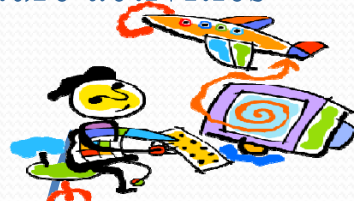
Tourist product

The actual product of the tourism industry is a tourist's experience which is provided by several social and economic actors (Judd, 2006).

Specific tourist product VS total tourist product
(Middleton, 1989).

Tourist's experience Life Cycle

Information acquiring, booking,
Pre-departure activities



Transport



Accommodation



Tourist activities



Post-return activities



Transport



System boundaries

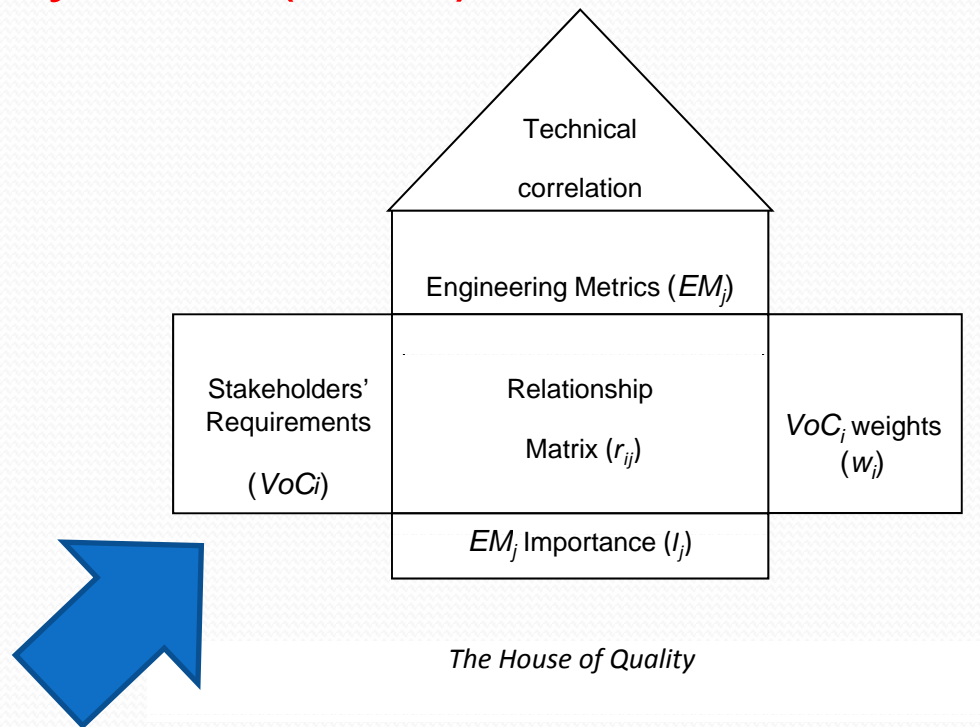
“The impacts of a tour operator come from the impacts of all components of the products they sell, including use of raw materials and their processing and production, as well as impacts from transport and distribution”
(Tapper and Font, 2004).



Specific environmental responsibilities can be identified case by case including those processes which:

- affect the quality of the tourist service studied, even those outsourced (requirement n. 4.1, ISO 9001:2008);
- can be influenced by the service studied (Annex A.3.1., ISO 14001:2004).

EcoDesign: Modified version of Quality Function Deployment (QFD) for Environment



Environmental hot-spots
(Environmental Stakeholders' Requirements)

How to improve already existing environmental tools in the tourism sector and create synergies

Sustainability management system for tour operators, also to qualify their own suppliers

A free EU monitoring and benchmarking tool online to reduce environmental consumption and cost in tourist accommodations

EcoPassenger



www.ecopassenger.com



www.tourbench.info

A user-friendly internet tool to compare the energy consumption, CO₂- and exhaust atmospheric emissions for planes, cars and trains for passenger transport in Europe

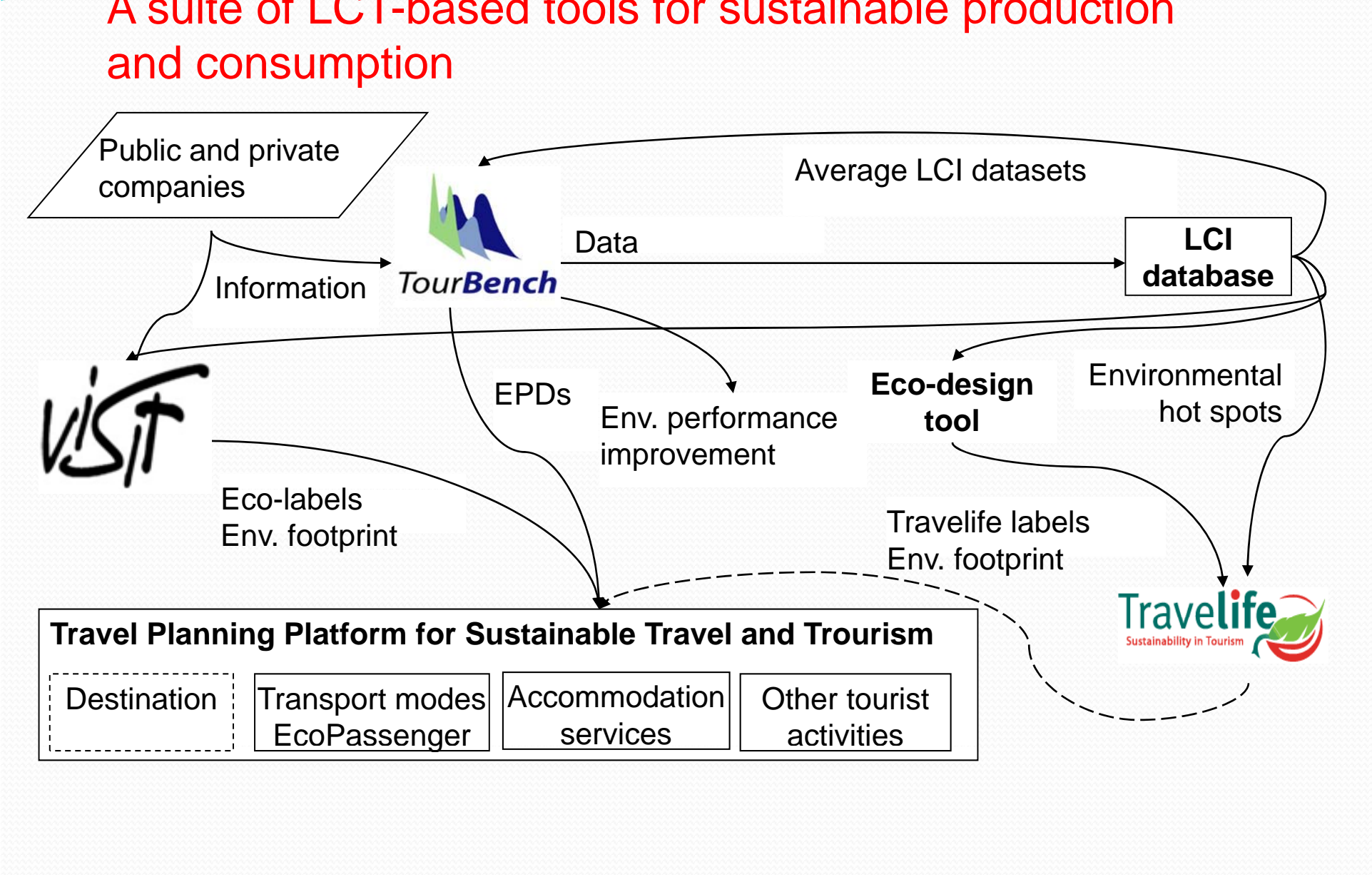
A collage of various environmental and sustainability logos, including ISO, Green Globe, EcoTourism, and others, arranged around a central European Union flag. The logos are diverse in design, featuring leaves, globes, and abstract shapes, representing different organizations and initiatives in the field of sustainable development.



Voluntary Initiative for Sustainability in Tourism (Visit) is a standard setting the framework by which credible tourism eco-labels should operate in Europe. The purpose of this initiative was, therefore, to put together tourist labelling under an unique Visit umbrella, also to increase the label recognisability by tourists.



A suite of LCA-based tools for sustainable production



Key results



- Preliminary LCA approaches have been identified (product categories, functional unit, system boundary, allocation)
- An EcoDesign methodology has been fine-tuned
- A new suite of LCT-based instruments for sustainable consumption and production has been developed

Scientific papers

Int J Life Cycle Assess (2010) 15:148–155
DOI 10.1007/s11367-009-0139-8

SOCIETAL LIFE CYCLE ASSESSMENT

Tourism LCA: state-of-the-art and perspectives

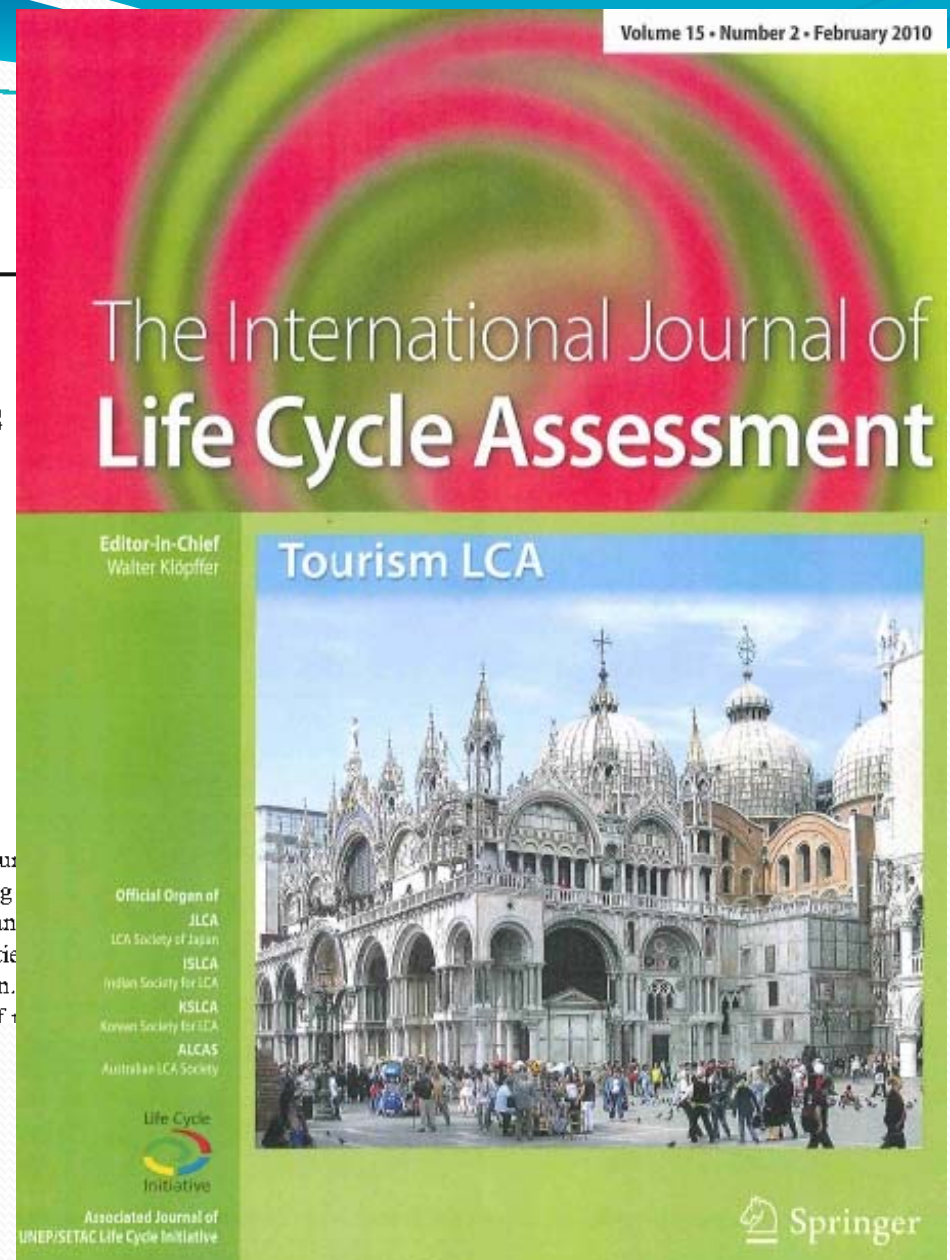
Camillo De Camillis · Andrea Raggi · Luigia Petti

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Abstract

Background, aim and scope Records over the last decades indicate a high growth rate for tourism, making it one of the most important industries in the world economy. Since estimates outline a consolidation of this trend, an accurate identification and assessment of the environmental

made regard: system boundaries and methods for assessing. **Discussion** A critical and considerable dissimilarities methodology application. made any comparison of



Ecodesign for services: an innovative comprehensive method

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Life cycle assessment in the framework of sustainable tourism: a preliminary examination of its effectiveness and challenges

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Abstract: The environmental sustainability of tourism has been increasingly appearing in Local Agenda 21 and in the development policies of many countries. Although several studies have focused on sustainable tourism, only a few of them are based on life cycle assessment (LCA), the main methodology to assess environmental issues from a life cycle perspective. In order to gain a

Progress in Industrial Ecology

An International Journal



Impact



THE EUROPEAN ENVIRONMENT

STATE AND OUTLOOK 2010 SYNTHESIS

European Environment Agency



Monitoring progress in Sustainable Consumption and Production in the EU

Decoupling indicators

Accompanying document for the public consultation on draft framework, methodology, data basis and updating procedures for the decoupling indicators, base-of-products indicators and waste management indicators

This document is a draft for public consultation only and it cannot be used for any other purpose



Thanks for your attention

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