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## Research article

## A model for measuring the environmental sustainability of events

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## ABSTRACT

Like all human activities, events can generate significant pressures on environmental resources, unless they are well-managed and monitored. Therefore, it is becoming more and more important to develop models that can measure their environmental sustainability. Although increasing attention is being paid to this sector, there is currently no standard protocol or method to assess the eco-sustainability of events. This article presents an innovative assessment procedure to measure the environmental sustainability of events. It is based on several indicators, combined by means of a multi-criteria approach and aggregated into a final index, which we called METER (Measuring Events Through Environmental Research). The METER index uses nine major operational categories, divided in sub-categories and detailed items, which cover all the main aspects concerning environmental sustainability of an event and are evaluated for all its phases, i.e. planning, organisation, implementation, post event. The index is fairly analytical, and is thus able to represent the numerous aspects to be taken into consideration in the environmental assessment of an event. At the same time, it is simple to apply and user-friendly, thanks to its graphics and effective communication of the web platform within it is implemented. Moreover, METER is based on a participatory approach using the bottom-up model and on the principle of subsidiarity. All official international documents regarding sustainable development now require subsidiarity. However, it is not being currently applied as part of any certification or with any evaluation tool. Therefore, although the index is still a prototype, it represents an innovation in the field of environmental management. A simple exemplary case is presented, about a European Spring School held at University of Perugia (Italy) in 2014, in which the application of METER showed a sustainability assessment score of 638 points out of 1000, with an excellent management of waste, catering, internal travel and participation aspects.

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## 1. Introduction

Consumer demand for sustainable products and services has increased in recent years (OECD, 2008; Nidumolu et al., 2009). This is due to an increased awareness of the irreversible phenomena caused by the current pattern of consumption and production. These include climate change, deforestation and loss of biodiversity, to name but a few (Vitousek et al., 1997; McMichael, 2013; Maia de Souza et al., 2013; Galli et al., 2014). In this context, environmental certification systems have expanded encompassing numerous economic sectors, including event organisation. An important milestone for this sector was the guide published by the United Nations Environment Programme (UNEP et al., 2009), the “Green Meeting Guide - Roll out the Green Carpet for your Participants”. This was drawn up to assist event organisers and host

locations in implementing environmentally sound events. The guide, intended for small and medium events (up to 200 participants), can be applied by all organisations, especially those within the United Nations system. A few international standards for environmental certification are available for the event sector: the international ISO 20121, the American Society for Testing and Materials (ASTM) Standards for Green Meetings and the Global Reporting Initiative-Event Organisers Sector Supplement (GRI-EOSS).

The ISO 20121 Event Sustainability Management (2012) defines a sustainable management system for events leading to environmental certification. Several international events have used this certification, including the 2012 London Olympic Games, the Danish EU Presidency, the 2014 French Open and EXPO Milan 2015. ASTM Standards for Green Meetings are a number of direct American standards for the Manager Meeting Incentive Congress & Event (MICE) sector, developed for business travel. The GRI provides sector guidance for event organisers, enabling them to measure and report their sustainability performance. The Event

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Organisers Sector Supplement provides reporting guidance for all types and sizes of events, including business, sports and cultural events. Environmental certification and how to achieve it depend on the measurement of environmental sustainability. The aforementioned international guidelines do not as yet propose a standard or common method to evaluate the environmental sustainability of events for certification.

Policy makers are looking beyond mere certification and are increasingly interested in fully understanding all the effects of events, including their impact on the environment (Collins and Flynn, 2008). As a result, the environmental effects of events need to be investigated in depth and their environmental sustainability recorded accurately, in order to allow for monitoring and improvements over time. Measuring sustainability of events is a key issue if a new, sustainable, responsible events paradigm is to be embedded in public policy (Getz, 2009). Examples of the use of specific methodologies to measure the environmental sustainability of events include: Ecological Footprint (Collins and Flynn, 2008; Collins et al., 2009); Sustainability Reporting (Sherwood et al., 2004); Environmental Input-Output Analysis (Collins et al., 2009); Mathematical models taking into account greenhouse gas emissions (Parkes et al., 2016); and Set of indicators (Sherwood, 2007). *Events and the Environment* (Case, 2013) was the first book to provide a thorough exploration of the multi-dimensional relationships between events and the environment. It gave important information on how sustainable measurement practices can be incorporated into event planning, management and monitoring, presenting several case studies. However, there is currently no homogeneous or recognised protocol to assess event sustainability. Moreover, “green issues are still missing from events literature” (Laing and Frost, 2010). While the economic and social impacts of events are widely discussed, discussions on the environmental impacts are rare (Carlsen et al., 2001). At the same time, heightened attention to the environment has initiated an international debate to discover how the event industry can improve its environmental sustainability (Dickson and Arcodia, 2010). Therefore, this is becoming a priority research area (Getz, 2008).

After the Rio de Janeiro Earth Summit (1992), paragraph 19 of the 5th EU Environmental Action Programme (1993–2000) set out the need to change the strategy for environmental protection intervention procedures. It marked the transition from the traditional “command and control” method to methods directly involving companies and making them responsible. Responsibility took place by voluntarily participating in political and environmental protection programmes. The EU Regulation 1836/93 introduced the Community Eco-Management and Audit Scheme (EMAS): organisations (companies, public bodies, etc.) could voluntarily register in the EMAS system to evaluate and improve their environmental performance and to make this information public. Another voluntary system was the ISO 14001 standard (ISO, 1994), subsequently updated in 2015. It aimed at promoting a universal approach to environmental management and to increase the organisations capacity of measuring their progress as regards environmental performance.

As mentioned, environmental certification is also available for events. The ISO 2012 on Event Sustainability Management clearly points out the procedure for obtaining environmental certification for events. According to several studies on the benefits and difficulties of environmental certification (Prajogo et al., 2012; Martín-Peña et al., 2014), the official certification system requires a major effort not only for the time and documents to be produced/updated (Quazi, 1999; Zilahy, 2004), but also in terms of substantial costs (Liyin et al., 2006; Turk, 2009). It is a good tool for obtaining eco-sustainable systems, but does not, however, take into account the active participation of all stakeholders.

The aim of this paper is to present our innovative assessment procedure for measuring the environmental sustainability of events. It is based on several indicators, combined by means of a multi-criteria approach and aggregated into a final index, which we called METER (Measuring Events Through Environmental Research). In our opinion, one of the fundamental inputs for METER within the evaluation process is the participatory approach, based on the bottom-up model. Both the participatory approach and the multi-criteria analysis are approaches which, as far as we know, have been used for the first time to evaluate event sustainability.

## 2. The participatory approach

This paragraph provides some information on the participatory approach and the context in which it was established. The International Federation for Organic Agriculture Movements (IFOAM) has promoted the Participatory Guarantee Systems (PGS) as an alternative certification system. These are defined as locally focused, quality assurance systems. They certify producers and focus on the active participation of stakeholders, based on trust, the exchange of knowledge and social networks (May, 2008).

The historical path leading to the current definition of PGS began in the 1970s, when the first agricultural community of organic farmers in Europe and the United States was established. They promoted a fair, sustainable production model, encouraging the local community to cooperate with the various stakeholders involved, in a network in which everyone participates actively. In order to get consumers to recognise and believe in their products, they created a participatory certification system. This system demanded compliance with a set of rules, which they themselves had established and mutually approved (Källander, 2008).

The first International Workshop on Alternative Certification was held in Brazil in 2004. It was organised by the IFOAM and the Latin American Agroecology Movement (MAELA) with participants from 21 countries who defined the common, key elements among the various PGS (Fonseca, 2004). The workshop concluded with the agreement to legitimise alternative certification systems, now called Participatory Guarantee Systems, for the first time. The salient features of the existing PGS were identified. In 2008, the IFOAM Task Force published the guidelines on PGS (May, 2008). PGS are a concrete example of how real participation could be a good basis for certification. Nowadays they are applied in Brazil as parallel system for certification,<sup>1</sup> next to the traditional third-party system. PGS share with the third-party systems the goal of providing a credible guarantee for consumers seeking organic products. However, they require the direct participation of farmers, technicians and consumers in the certification process (IFOAM, 2007). The involvement of civil society allows for the social control, participation and solidarity accountability, which are the main features of PGS (Fonseca et al., 2008). The presence of public and private partnership and the construction of agro ecological knowledge and empowerment is also part of the process of PGS (Fonseca et al., 2008), since it is a learning process (IFOAM, 2007).

The principle of subsidiarity is, therefore, one of the main foundations of such systems. According to European Union Policy, subsidiarity is one of the most important drivers of sustainable development: the individual and civil society must act freely, limiting the intervention of the institutions only when necessary (Official Journal of the European Communities, 1973). Accordingly, the interventions must be carried out with the widest possible participation of institutions closest to the people.

<sup>1</sup> Instrução normativa n° 19, de 28 de maio de 2009- Macanismos de Controle e Informação da qualidade orgânica.

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