

## A study of sustainable indicators for sports mega-events in Taiwan

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Over the last 10 years, Taiwan has won the right to host mega sports events such as the 2009 World Games, the 2009 Deaflympics, and the 2017 Universiade. Notwithstanding these achievements, the potentially huge impacts in terms of the sustainable development of not only the host city, but also the entire country, have been neglected. This study therefore aims to establish indicators of sustainability for the hosting of mega sports events in Taiwan with a view to assisting the evaluation of future events and policymaking. Although the increasing need for studies of sustainable mega sport events is widely recognized (Griffin, 2009; Ma et al., 2011; The University of British Columbia, 2009), to date no empirical study has focused on the sustainability issues to assess the extent to which staging such events impacts Taiwan's sustainable development. Sustainability is defined by the Brundtland Commission as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." In terms of its application in sports mega-event research, sustainability entails the management of the economic, social, and environmental impacts and the leveraging of benefits to ensure the games leave positive legacies for the host destinations. The International Olympic Committee has acknowledged the importance of sustainable development and social responsibility by initiating the Olympic Games Impact program (study) (OGI) to measure the global impact of the Olympic Games. It aims to assist host cities to identify potential legacies and to maximize the Games' benefits and minimize negative impacts. This has meant that the sustainability issue is increasingly becoming the core of mega sports events in terms of planning and research. However, there are some challenges to the OGI approach. First, there is no precise way of determining the total number of indicators to be included in each assessment stage and from case to case (e.g., Vancouver 2010 and London 2012). It is also difficult to decide whether the 120 defined indicators of OGI amount to a once-size-fits-all solution. This concern is addressed here to reflect the fact that the establishment of OGI indicators is entirely based on the experiences of previous and current host cities (i.e., Vancouver 2010 Winter Olympic Games, London 2012 Olympic Games), which are highly developed and mature destinations. However, the development stages of a country or city have been neglected, which might create difficulties with respect to the collection of data that are sufficiently consistent and comprehensive. Ideally, data should be

collected annually and then compiled adequately to ensure its ready accessibility. However, in many instances this is not the case. Consequently, there is a risk that indicators pertaining to the problem will be omitted and that a comparison between different host cities might not come to fruition. Therefore, in addition to the OGI, much attention will need to be paid to the development of local indicators to provide baselines throughout the pre-, during, and post-Games periods. Given the gaps that can be identified in research and in practice, this study will address the need to establish sustainability indicators for the specific evaluation of mega sports events in Taiwan. The preliminary selected indicators will be established by referring to the relevant literature and the OGI technical manual (obtained from the IOC Research Center). The study aims to (1) establish indicators and an assessment methodology that can be applied to the sustainability of mega sports events in Taiwan and to (2) facilitate a more strategic approach to the sustainable development of the host destination through the events. The intention is for the sustainability indicators to assist the evaluation before, during, and after the sports events.

The research methods in this study are a literature review, the Delphi Technique, and the Analytical Hierarchy Process (Saaty, 1977). A literature review (e.g., OGI, Olympic Movement's Agenda 21, and Taiwan Agenda 21) will identify the preliminary criteria indicators (30 indicators) (i.e., environmental, social, and economic sustainability indicators) and build a hierarchical structure. The AHP method will be applied to the design of the questionnaire and the examination of the relative weights of the indicators. The Delphi technique will be applied to reach consensus and to determine the sustainable indicators for mega sports events in Taiwan. The method is composed of sequential questionnaires that will be answered anonymously by a panel of experts in relevant areas. Participants in the Delphi study will not directly interact, to avoid situations where senior individuals might dominate panel members. The data will be processed using Microsoft Excel 2010 and Power Choice 2.0. The findings should assist the cross-validation of investigations of different sports events in Taiwan and around the world (e.g., 2010 Olympics and Paralympics Winter Games; 2012 London Olympic Games) and facilitate the development of a future assessment system to formulate sustainable development strategies for the hosting of mega sports events in Taiwan

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