



## Measuring the values that underlie sustainable development: The development of a valid scale

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### ABSTRACT

The United Nations General Assembly recognized the importance of people's sustainability values in driving attitudes and behaviors towards the sustainable development of globalization by declaring a set of "certain fundamental values to be essential to international relations in the twenty-first century" (UN, 2000). The specific values underlying this UN declaration are freedom, equality, solidarity, tolerance, respect for nature, and shared responsibility. Despite their importance, little is known about the nature of sustainability values and much work needs to be done in developing such scales. This study develops a reliable and valid measure of values underlying sustainable development which will hopefully stimulate further research on regional, cultural, and demographic differences in sustainable development.

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## 1. Introduction

Sustainable development is important. Sustainable development preserves the beauty of nature (Parris & Kates, 2003), nature as a source of resources and service to support life (Costanza et al., 1997; Zedler & Kercher, 2005), and/or communities (Etzioni, 1996; Margalit & Halbertal, 2004) while also developing economic (Conger & Donnellan, 2007; Oakes & Rossi, 2003) and/or non-economic gains (Parris & Kates, 2003) for specific people or society as a whole (Narayan & Petesch, 2002). Sustainable development refers to the "ability to make development sustainable – to ensure that it meets the needs of the

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present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development (WCED, 1987). Recently we have gained a deeper understanding of how humans value nature and its ecological functions (Azqueta & Sotelsek, 2007; Hamilton, 2002; Swinton, Lupi, Robertson, & Hamilton, 2007) as well as other quality of life attributes (Abdallah, Thompson, & Marks, 2008). This understanding helps explain people’s strategic actions (Prato & Herath, 2007; Wheeler, 2008), conservation attitudes (Bonaiuto, Carrus, Martorella, & Bonnes, 2002; Ferrer-i-Carbonell & Gowdy, 2007; Owen & Videras, 2006), and willingness to accept sustainable development efforts (Loomes, 2006; Shaikh, Sun, & Cornelis van Kooten, 2007; Spash, 2002; Thøgersen & Ölander, 2002).

However, it appears that in order to achieve sustainable development there needs to be a change in human values (a difficult task), which in turn help individuals to define and direct their goals, frame their attitudes, and provide a basis for assessing the actions of individuals, organizations, and societies (Leiserowitz, Kates, & Paris, 2006; Saifi & Drake, 2008). In general, values refer to beliefs pertaining to desirable end states that guide selection or evaluation of behavior, people, and events, and are ordered by relative importance (Schwartz, 1994). Specific to sustainable development, the United Nations General Assembly recognized the importance of changing people’s sustainability values to drive attitudes and behaviors towards the sustainable development of globalization by declaring a set of “certain fundamental values to be essential to international relations in the twenty-first century” (UN, 2000). These sustainable development values are essential to international relations in the 21st century because they will likely guide policy decisions (by international bodies and national governments), organizational actions, and customer and user behaviors, which subsequently impact the quality of people’s lives throughout the world and the preservation of the social and natural environment.

The specific values underlying The Millennium Declaration of the UN are freedom, equality, solidarity, tolerance, respect for nature, and shared responsibility. Despite their importance, little is known about the nature of sustainability values and the extent to which they help or hinder sustainable development (Mabogunje, 2004). For example, in reviewing surveys of global sustainability, Leiserowitz et al. (2006, p. 441) concluded that “surveys measured a different part of the ‘sustainability elephant’ and none had sustainable development as their primary research focus” and that much work needs to be done in developing multiple scales to understand the psychology of this important topic. More generally, Loomis and Rosenberger (2006) recommended that advancement in ecological economics requires “original research surveys be developed” and made available. This study presents an initial effort to create a reliable and valid measure of values underlying sustainable development and hopefully stimulate further survey work in this area.

In the following sections, we develop a scale for each of the fundamental values underlying sustainable development. These measures have valid psychometric properties and provide a solid foundation for future research on the psychology underlying ecological economics.

## 2. Fundamental values that underlie sustainable development

Sustainable development values have been expressed by Earth Charter (2000), World Summit on Sustainable Development (2002), and the Global Scenario group (Raskin et al., 2002) but “only in the Millennium Declaration is there a specific set of declared values, identified as ‘fundamental values’” of sustainable development (Leiserowitz et al., 2006, p. 418). These fundamental values are the focus of our scale’s development. In Table 1 we display each sustainable development value (SDV) and its definition (as provided in The Millennium Declaration of the UN, 2000).

Before developing the scales we make three acknowledgements. First, we focus on values and acknowledge that values are antecedents to attitudes and actions (Fishbein & Ajzen, 1972; Spash, 2002; Thøgersen & Ölander, 2002). We do not offer a measure of sustainable development or offer a means of valuing the natural environment or the development of people; rather, we measure the fundamental values that underlie sustainable development. Second, we acknowledge that actors will be likely “forced to choose, consciously or unconsciously, between competing values” – “these values are often incommensurate, and trade-offs have to be made” (Leiserowitz et al., 2006 p. 440). In measuring underlying values, we consider our measures as reflective, theoretically driven by the latent constructs, rather than formative. Finally, while these values are believed to be universal (an etic perspective), the factors that drive these values and how they shape attitudes and behaviors likely varies across cultures and over time (Torgler & García-Valiñas, 2007). Our measures provide a solid foundation for such future research on the psychology underpinnings of ecological economics.

## 3. Scale development

### 3.1. Item generation

Following the rigorous scale development process outlined in Nunally (1978), Churchill (1979), Schwab (1980), and Netermayer, Bearden, and Sharma (2003), we developed the scales to capture the six constructs. Item generation for the SDV scales began with the description for each value provided in The Millennium Declaration of the UN (see Table 1). The number of items generated was 7 for freedom, 9 for equality, 6 for solidarity, 11 for tolerance, 8 for respect for nature, and 14 for shared responsibility. Items were cast to reflect values rather than specific behaviors. After being reviewed alongside corresponding definitions by one German and one American professor for clarity and face validity, the wording of five items for equity was changed to enhance clarity. The scales were then reviewed by another four German professors, one Swedish pro-

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