# Chapter 8
# Challenges Turning Environment and Sustainability Science Into Policy:
## An Interdisciplinary Review

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## ABSTRACT

*In theory, there is a strong, two-way relationship between sustainability research and public policy that functions in synchrony to identify, understand, and ultimately address ecological problems for the greater good of society. In reality, such a cooperative relationship is rarely found. Instead, researchers and policymakers face a suite of challenges that prevent effective communication and collaborative pursuits, prolonging the period required to address environmental issues. In this chapter, the authors apply a novel interdisciplinary approach to identify key barriers and solutions to translating research into policy. In doing so, the authors present two separate discussions focused on the natural and social sciences. The authors also review established research-to-policy frameworks to develop the new "cohesive" framework. By addressing key barriers between researchers and policymakers, society will be better able to respond to the various environmental stressors that it faces today.*

DOI: 10.4018/978-1-5225-7302-9.ch008

## INTRODUCTION

Researchers and policymakers have long been concerned with the slow transfer of new knowledge into policy. Commonly referred to as the 'research-policy gap', this phenomenon occurs when "the expanding body of research... [is] having little to no effect in practice" (Cohen, Higham, Gössling, Peeters, & Eijgelaar, 2016 p. 319). This is when "more research is [not] needed" (Hering, 2016 p.1), instead a weakness in the science-policy link reduces effective integration of knowledge into action (Pahl-Wostl, Jeffrey, Isendahl, & Brugnach, 2011). As a consequence of this gap, society often struggles to resolve problems in a timely fashion, because the prerequisite information and the mechanism to enact change are disconnected. This problematic gap is widely reported across academic and political sectors including transportation, health care, education, and the environment (see Cohen et al., 2016; Watson, 2005). While all these sectors are critical for a stable and just society, the evolving suite of environmental crises faced by society paired with society's own rapid development and intensification, renders the environment and sustainability (ES) research-policy gap a particularly urgent concern (Watson, 2005).

## BACKGROUND

An ES research-policy gap forms when the scientific knowledge required to identify and address an ES issue exists, yet is not reflected in a society's policies. In many cases society values the environment as well as sustainable development — rightly believing future developments should "[meet] the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987 p. 15). Yet these values are not consistently reflected in policies and governance. For example, ES scientists have asserted for decades that climate change is largely due to carbon dioxide released during fossil fuel combustion, with transport alone contributing approximately 14% of the total greenhouse gas emissions (IPCC, 2013). The ES research outlining this issue is widely and freely available. Still, most societies have yet to implement any impactful policies to transition away from a fossil fuel-based transportation system (Covert et al., 2016), despite an increasing global interest in sustainable development (Waas et al., 2014).

While current interest in addressing the ES research-policy gap is high (e.g. Jerneck et al., 2011; Kowarsch et al., 2017), concerns over the limited societal impact of ES research are not new. Radaelli (1995) explains that environmental research "creeps [into] policy...via indirect, cumulative and diffuse processes" (p. 164). Others have claimed that research rarely impacts specific policy outcomes (MacRae, 1976) or

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