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Kate O'Brien  
k.obrien@uq.edu.au

Paul Maxwell  
*Healthy Land and Water*, Paul.M@hlw.org.au

Terrance Fitzsimmons  
*The University of Queensland, Australia*, t.fitzsimmons@business.uq.edu.au

Brian Head  
*The University of Queensland, Australia*, brian.head@uq.edu.au

Margaret Crane  
*The University of Queensland, Australia*, mcrane@temple.edu

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## An environmental modelling approach sheds new light on a thorny problem: gender inequality in science

**Kate O'Brien<sup>a</sup>, Paul Maxwell<sup>b</sup>, Terry Fitzsimmons<sup>c</sup>, Brian Head<sup>d</sup> and Margaret Crane<sup>e</sup>**

- a. [k.obrien@uq.edu.au](mailto:k.obrien@uq.edu.au) School of Chemical Engineering, University of Queensland, St Lucia, Queensland 4072, Australia
- b. [Paul.M@hlw.org.au](mailto:Paul.M@hlw.org.au) Healthy Land and Water, PO Box 13204, Brisbane Queensland 4003, Australia
- c. [T.Fitzsimmons@business.uq.edu.au](mailto:T.Fitzsimmons@business.uq.edu.au) Business School, University of Queensland, St Lucia, Queensland 4072, Australia
- d. [brian.head@uq.edu.au](mailto:brian.head@uq.edu.au) School of Political Science, University of Queensland, St Lucia, Queensland 4072, Australia
- e. [mcrane@temple.edu](mailto:mcrane@temple.edu) Department of Psychology, Temple University, Philadelphia, PA 19122 USA

**Abstract:** Much has been written and said about gender inequality in Science, Technology, Engineering and Mathematics (STEM): documenting the phenomenon, proposing a myriad of causes, debating possible solutions, and, most frequently, asking why is progress so slow? In this study, we propose that gender inequality in STEM is not just one problem, but a collection of interconnected, poorly defined problems for which there are no definitive solutions. Sound familiar? The same challenges characterize other wicked problems, such as those faced in modelling and managing socio-ecological systems. Like ecosystem health, gender equality has multiple valid definitions and no single indicator of success. Not only is there no clear solution, there is also no one cause: both gender inequality and poor ecosystem health arise from feedbacks and interactions between processes across a range of spatial and temporal scales. Drawing on this analogy, we propose that the adaptive management cycle provides a suitable framework for tackling gender inequality in science, by navigating between the twin perils of oversimplification and drowning in complexity. The first step in adaptive management is modelling and understanding the system: defining which aspect of the problem is the priority, while recognizing the complex, fragmented nature of the issue, and the many (sometimes conflicting) values involved. In this transdisciplinary project, we argue that a similar approach is needed to cut through the current tangle, and define a clear path forward for tackling the issue of gender inequality in science.

**Keywords:** *adaptive management; feedbacks; gender inequality; wicked problem*