



# Annotated Bibliography

CIP Climate Change Committee, Issue 01

**Title:** The Super-Wicked Problem of Climate Change

**Preamble (to be included in all releases):** The Canadian Institute of Planners Climate Change Committee is developing a series of annotated bibliographies as one of our deliverables for this year. Through these bibliographies we intend to tell a story that explores the dynamic and challenging issues that affect the ability of the planning profession to mitigate greenhouse gas emissions while adapting to the impacts of climate change. This story is the tale of a wicked problem, rooted in social complexity, policy and planning law, technological variability, and the geographic realities that define Canada.

**Focus:** Climate change is a global issue tied intimately to human settlement, land use, and modern society as we know it. The inter-related and complex physical and sociological issues associated with climate change have led it being classified as a **wicked problem**. As difficult and intimidating as this global problem is, the use of the term "wicked" denotes resistance to resolution, rather than evil. Wicked problems are often multi-causal, and because of complex interdependencies, the effort to solve one aspect of a wicked problem may reveal or create other problems. **Super wicked problems** further confound meaningful resolutions by incorporating the following elements: 1. Time is running out. 2. No central authority. 3. Those seeking to solve the problem are also causing it. 4. Policies discount the future irrationally into the complexity of the issue. It is clear that Climate Change has all of these hallmarks.

**Key Takeaways:** This bibliography connects the wicked problem concept to climate science and the complicated nature of climate issues. Key takeaways of this resource collection include:

1. Wicked problems are characterized by a range of factors, including complexity, rapidly changing characteristics, multi-sectoral impacts, and short response times.
2. Embracing the complexity of the issue is fundamental to successful resolutions. Simplification of the issues will confound progress and foster the perception of win/lose outcomes rather than an ongoing balance of trade-offs.
3. Collaboration and incremental implementation strategies allow for opportunities to learn and alter climate change mitigation strategies on the fly.
4. Finding common values between various groups is essential to creating buy-in.
5. Effective leadership is pivotal to ensuring progress and innovation.



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Title	Author(s)	Publication Date	Relevance to Planners	Scope
<a href="#">Climate Change Adaptation in the World's Best Places: A Wicked Problem in Need of Immediate Attention</a>	J. Perry	2015	National World Heritage (NWH) sites are globally recognized as having universal value, providing society with critical ecosystems services like biodiversity, clean water, and recreational opportunity. Every natural NWH site is at risk from climate change. Action is constrained by institutional mandates focused on preserving existing conditions rather than recognizing a dynamic future. The author argues that effective adaptation must occur at a broader, ecosystem scale than the site specific one currently used to manage NWH. Adaptation should also be characterized by responsive, participatory approaches based on small and "clumsy" (i.e. conventional policy) solutions.	International - adaptation
<a href="#">A Wicked Problem: Controlling Global Climate Change</a>	World Bank	2014	Mitigating global climate change is a wicked problem characterized by significant scientific and economic complexity, profound ethical issues, and lack of agreement on what the problem actually is. Deep emission cuts are immediately needed and putting a price on carbon is an essential part of the solution. However, complimentary policies need to be enacted in areas ranging from land use, to trade policies, to investments in technological research and development. The economic impacts of these policies on developed and developing countries leaves consensus lacking.	International - mitigation
<a href="#">Governance of Wicked Climate Adaptation Problems</a>	C. Termeer, A. Dewulf, and G. Breeman	2013	Wicked problems are those problems that defy definition, are symptomatic of other problems, are challenging to solve, and are interconnected with other problems. Climate change adaptation is more wicked than most because the policy domain is still forming and its foundation is uncertain and contested. This article explores the theory of wicked problems and approaches for resolving them, which are characterized by "theoretical multiplicity".	International - adaptation



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<a href="#">Governance Capabilities for Dealing Wisely with Wicked Problems</a>	<p>C. Termeer, A. Dewulf, G. Breeman, and S. Stiller</p>	<p>2013</p>	<p>Four case studies are presented where wicked policy issues have been historically resolved. These case studies are used to illustrate how planners can draw on the capabilities of reflexivity (the ability to deal with multiple frames), resilience, responsiveness, and revitalization. Such capabilities exist within the current operational capacity of institutions.</p>	<p>International - foundation</p>
<a href="#">Ten Principles for a Landscape Approach to Reconciling Agriculture, Conservation, and Other Competing Land Uses</a>	<p>J. Sayer, T. Sunderland, J. Ghazoul, J. Pfund, D. Sheil, E. Meijaard, M. Venter, A. Boedhihartono, M. Day, C. Garica, C. van Oosten, and L. Buck.</p>	<p>2013</p>	<p>Landscape approaches seek to provide tools and concepts for managing land to achieve social, economic, and environmental objectives in areas where other land uses compete with environmental and biodiversity goals. The construction of renewable energy projects can be one of these other competing land uses. Ten summary principles are provided to support the implementation of a landscape approach that could lead to rational solutions for competing interests.</p>	<p>International - foundation</p>
<a href="#">Overcoming the tragedy of super wicked problems: Constraining our future selves to ameliorate global climate change</a>	<p>K. Levin, B. Cashore, S. Bernstein, and G. Auld</p>	<p>2012</p>	<p>Super wicked problems are characterized by four features where traditional analytical techniques are ill equipped to identify solutions: timing is running out; those who cause the problem also seek to provide a solution; the central authority needed to address it is weak or non-existent, and policy responses discount the future irrationally. Greater attention needs to be given to the generation of path-dependent policy interventions that can constrain our future collective selves.</p>	<p>International - foundation</p>
<a href="#">Tackling wicked problems : A public policy perspective</a>	<p>Australian Public Service Commission</p>	<p>2012</p>	<p>There is no quick fix for wicked problems. No glib formula about "Seven Steps to Crush Social Complexity". This article explores three strategies open to public sector agencies to respond to climate change: authoritative strategies that consolidate power within one agency thereby forcing the simplification of the issue; competitive strategies in which stakeholders accept a win-lose outcome; and collaborative strategies whereby partnerships lead to innovative solutions.</p>	<p>International - foundation</p>



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<a href="#">Adaptation and Risk Management</a>	R. Jones and B.L. Preston	2010	Risk management and climate change are linked. Simple approaches, while sound in many cases, can lead to inadequate solutions when long-term adaptation is included within the scope of responses. Stakeholders must avoid the temptation to oversimplify adaptive solutions and address the full complexity of the issue. Risk management therefore becomes an iterative and learning activity.	International - adaptation
<a href="#">Wicked Problems: The Implications for Public Management</a>	B. Head and J. Alford	2008	Wicked problems affect the development of strategies, organizational design, people- management and performance measurement. Collaboration, including intergovernmental and regional approaches, systems thinking, and the mobilization of adaptive solutions by planners are key to address the complexity of wicked problems in an effective way.	International - foundation
<a href="#">Dilemmas in a General Theory of Planning</a>	H.W.J. Rittel and M.M. Webber	1973	Societal problems are characterized by complexity and, from this perspective, planning problems are wicked problems. This ground-breaking article defines wicked problems based on 10 key characteristics common to planning issues and suggests the resolution of these issues rests with incremental solutions and the identification of common values (not "solution" - societal problems are never solved - at best they are only re-solved over and over again).	International- foundation

Interested in the broader academic theory on planning and climate change and looking for additional resources? These libraries provide extensive reading the subject policy and planning as they relate to climate change:

- Planning Theory and Practice (<http://www.tandfonline.com/loi/rptp20>).
- Researchgate (<https://www.researchgate.net/>)

This annotated bibliography is intended to provide an introduction to the subject area and further exploration by the reader. It is not intended to be comprehensive. We have also focused solely on open source resources to ensure the referenced resources can be accessed by a broad audience. That said, we are interested in your feedback! If you have additional resources or themes you would like us to explore, please let us know through the Canadian Institute of Planners.



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The Climate Change Committee is a volunteer committee established by the Canadian Institute of Planners provide current, cutting edge guidance and direction on how to address the impacts of climate change on our communities and within the professional practice of members.