



# **Constructing novel risks: The case of bisphenol A**

---

**Steve Maguire**, McGill University

**Cynthia Hardy**, University of Melbourne  
& Cardiff University

# Novel risks

- Risks consist of “three conceptual elements: an **object** deemed to ‘pose’ the risk, a **putative harm**, and a **linkage alleging some form of causation** between the object and the harm” (Hilgartner, 1992: 40).
- In the case of novel risks, one or more of these three components – the object, the harm, or the causal linkage/pathway – is unfamiliar and not well understood
- As a result, the meaning of the object in relation to risk is equivocal, resulting in considerable controversy as different groups of actors contest the very existence of the risk let alone what to do about it.
- ***How do organizations recognize and act on novel risks?***

# Methods

- Research design and site section
  - Theory building from *single, qualitative, inductive case study* of BPA in Canada and Australia covering the period 1993 – 2013.
    - Endocrine disrupting hypothesis dates to 1991, with BPA added to list of possible EDCs in 1993
- Data collection
  - Assembled secondary sources about BPA
  - Collected a range of primary texts authored by scientific, government, industry and NGO actors, as well as media articles, on chemicals management and BPA
  - Interviewed representatives of government regulators, industry actors, and NGOs, as well as scientists, in both countries

# Methods

- Data analysis - I

- We examined documents and interview transcripts for accounts of possible harm linked to BPA, i.e. risks
- We expected to find an emphasis on BPA's possible chemical risk to human health and the environment, which was definitely there.
- But we were struck by how different actors linked BPA to a range of other types of potential harms or damage to themselves, their organization, or their profession. The actors were **endocrinologists, toxicologists, chemical manufacturers, NGOs, retailers, Canadian regulators, Australian regulators.**
- We noted that actors, when faced with BPA's equivocal meaning in relation to risk, translated this equivocality into more familiar risks which provided a clearer basis and guide for action: professional, regulatory, reputational, and operational risks. We refer to this as **risk translation.**

Competing groups of **scientists** translate BPA's equivocal meaning into two versions of **professional risk**

### **Endocrinologists**

- BPA's chemical risk is much less uncertain than suggested by the controversy. Other scientists are compromising the integrity of the scientific profession by conducting methodologically and industry biased research

### **Toxicologists**

- BPA's chemical risk is exaggerated if it exists at all. Other scientists are compromising the integrity of the scientific profession by conducting methodologically and politically biased research

## **Chemical manufacturers translate BPA's equivocal meaning into **regulatory risk****

- BPA chemical risk? What risk?
- There is no risk to health or the environment; the risk of BPA is the regulatory risk of increased costs and lost business opportunities.

# NGOs translate BPA's equivocal meaning into **reputational risks**

- *BPA's risk was simply so high-profile and there was so much publicity about it ... that we couldn't afford not to get involved. We had half a dozen major articles in national newspapers and magazines (Australian NGO)*

# Retailers translate BPA's equivocal meaning into reputational risks

- *We have stopped selling products containing BPA. These products are not defective and have not been recalled. We have stopped selling them ... because our customers have expressed concern about this potentially harmful chemical (Canadian retailer)*



# Regulators translate BPA's equivocal meaning into two versions of **operational risk**

## Canada

- BPA's chemical risk is indicative of a broader operational risk to effective chemicals management, because it is a legacy chemical and potentially an endocrine disruptor. In this situation, **adherence to existing processes** threatens the effective management of chemical risks.

## Australia

- BPA's chemical risk is indicative of a broader operational risk to effective chemicals management, because it is politicized and has attracted media attention. In this situation, **non-adherence to existing processes** threatens the effective management of chemical risks.

# Methods

- Data analysis - II
  - We noted that actors **took action to manage these translated risks** and not necessarily to manage BPA's chemical risk per se, which, especially in the early days, had not yet been constructed.
  - We also noted that these risk management actions were however consequential for BPA and its meaning in relation to risk through their **normalizing** and **problematizing** effects on the prevailing body of risk knowledge and/or on BPA directly
  - Normalizing actions *weakened* BPA's meaning as a risk object.
    - Toxicologists, chemical manufacturers, Australian regulators
  - Problematizing actions *strengthened* BPA's meaning as a risk object.
    - Endocrinologists, NGOs, retailers, Canadian regulators

## E.g. Manufacturers' risk management actions

- Fund research using traditional toxicology methods and widely disseminate findings indicating BPA does not pose a risk
- Set up websites to challenge 'myths' about BPA
  - *Government and scientific bodies around the globe have extensively evaluated the weight of scientific evidence on BPA and declared that BPA is safe as used (American Chemistry Council)*
  - *Scientists and regulatory agencies around the world have found BPA to be safe for use (factsaboutbpa.org)*
  - *The weight of scientific evidence clearly supports the safety of BPA (plasticsinfo.org)*
  - *The weight of scientific evidence clearly supports the safety of BPA (bisphenol-a.org)*
- Intervene in risk assessments of BPA by different jurisdictions, arguing for traditional methods and findings of safety

## E.g. Canada's risk management actions

- Alter existing processes to consider the endocrine disruption hypothesis, and to bring Health and Environment ministries, as well as risk assessment and management, together into “Four Corners’ Governance”
  - *I think a huge amount of our Chemicals Management Plan research funding goes into endocrine disruption and ... [trying to] come up with standardized tests that will get us something to give us a better indication of whether something's adverse (Canadian regulator).*
  - *[The relationship between Health & Environment] got better and better as people established stronger and stronger working relationships, as kind of knocking those walls down and people started actually holding hands on either side of it (Canadian regulator)*
  - *[The risk managers are included in assessments] so that they have a better sense of all the issues from an earlier stage. So then they're not playing as much catch-up later on when you come up with a risk assessment conclusion. Plus they can help us (Canadian regulator)*

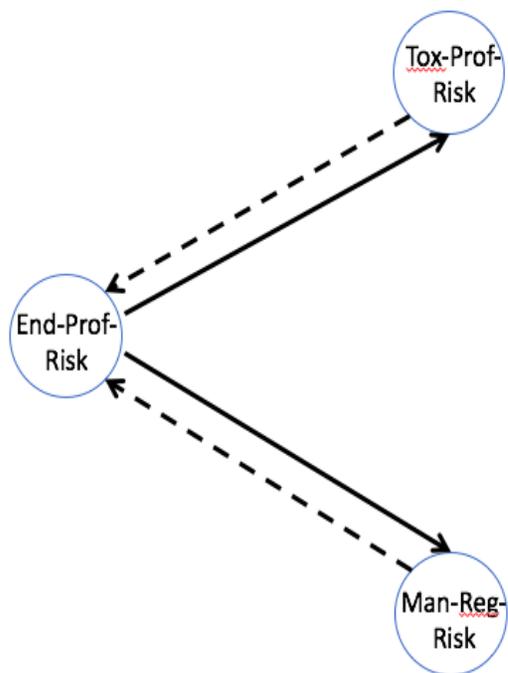
## E.g. Australia's risk management actions

- Adhere to existing processes in face of endocrine disruption hypothesis, and keep Health and Environment ministries, as well as risk assessment and management, separate.
  - *From a scientific point of view, I don't think that there's anything new in [babies and infants being vulnerable to endocrine disrupting chemicals] ... I think it's maybe risen more in the minds of certainly the public ... But the end point of what system a toxin might affect and at what level it might affect it is something that has been considered as part of scientific risk assessment for a long while for chemicals (Australian regulator).*
  - *We take a very straight down the line science approach to things and we are very rigorous in terms of distancing risk management from the risk assessment. There's a physical separation ... between those two activities, but philosophically as well. We're very much 'the science says what the science says, right?' Draw a line. Now decide what to do about it (Australian regulator).*

# Methods

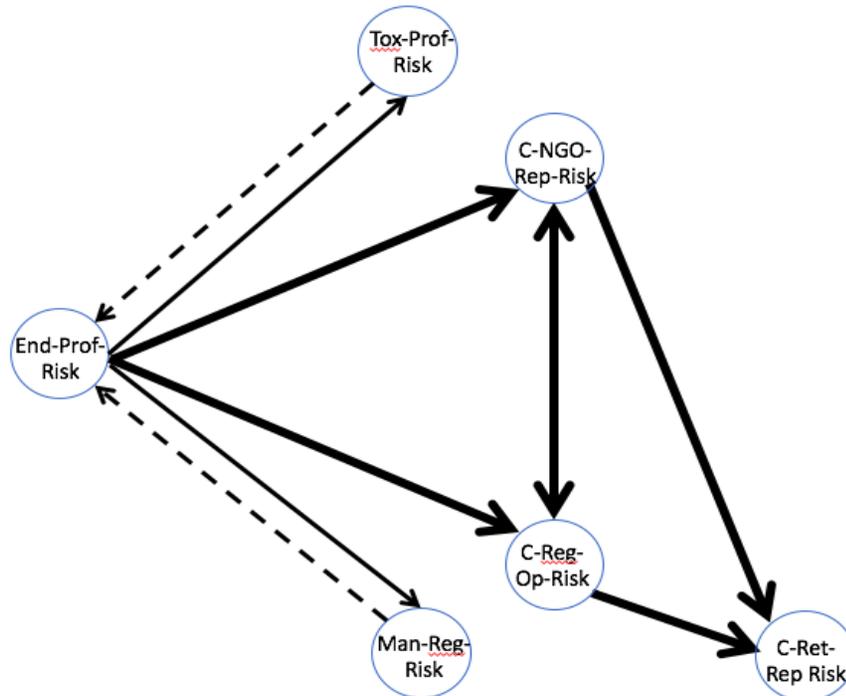
- Data analysis - III
  - We explored the processual aspects, identifying when risk translation and action on translated risks began as well as interrelations among different translated risks.
  - We noted that risk management actions by one actor sometimes heightened the translated risks that other actors had constructed for themselves, giving rise to an **ecology of risk**.
  - We related this evolving ecology of risk to the construction of the focal novel risk

## Ecology of Risk (1993 - early 2000s)



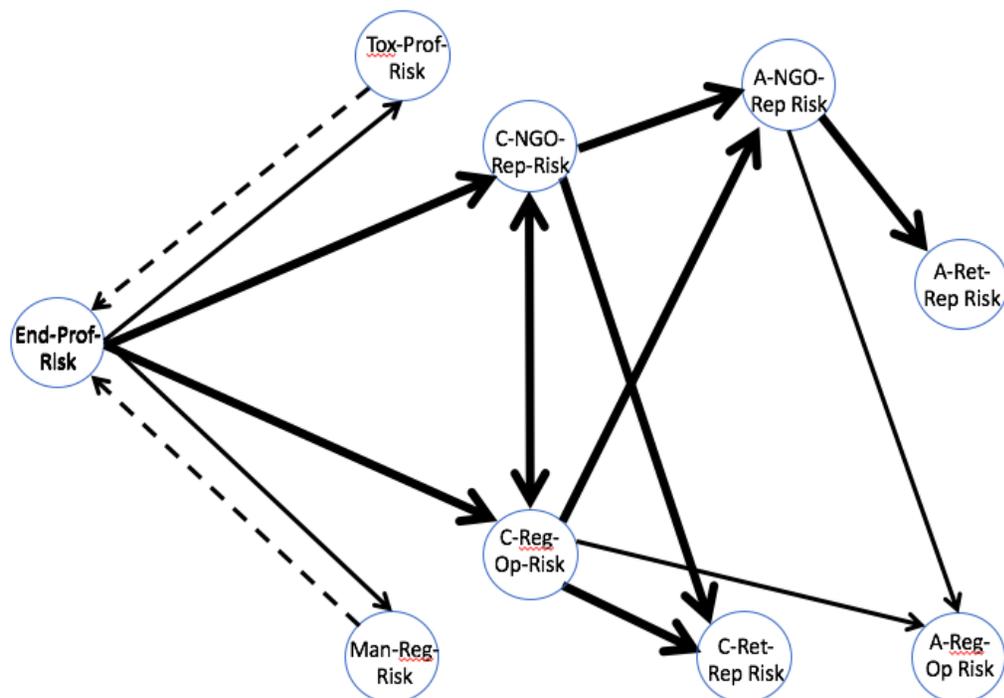
Legend	
	Normalizing risk management actions heighten translated risk
	Problematizing risk management actions heighten translated risk
	Problematizing risk management actions heighten translated risk and form part of synergistic problematizing chain
<b>End-Prof-Risk</b>	Endocrinologists' professional risk
<b>Tox-Prof-Risk</b>	Toxicologists' professional risk
<b>Man-Reg-Risk</b>	Chemical manufacturers' regulatory risk
<b>C-NGO-Rep-Risk</b>	Canadian NGOs' reputational risk
<b>A-NGO-Rep-Risk</b>	Australian NGOs' reputational risk
<b>C-Reg-Op-Risk</b>	Canadian regulators' operational risk
<b>A-Reg-Op-Risk</b>	Australian regulators' operational risk
<b>C-Ret-Rep-Risk</b>	Canadian retailers' reputational risk
<b>A-Ret-Rep-Risk</b>	Australian retailers' reputational risk

# Ecology of Risk (mid 2000s)



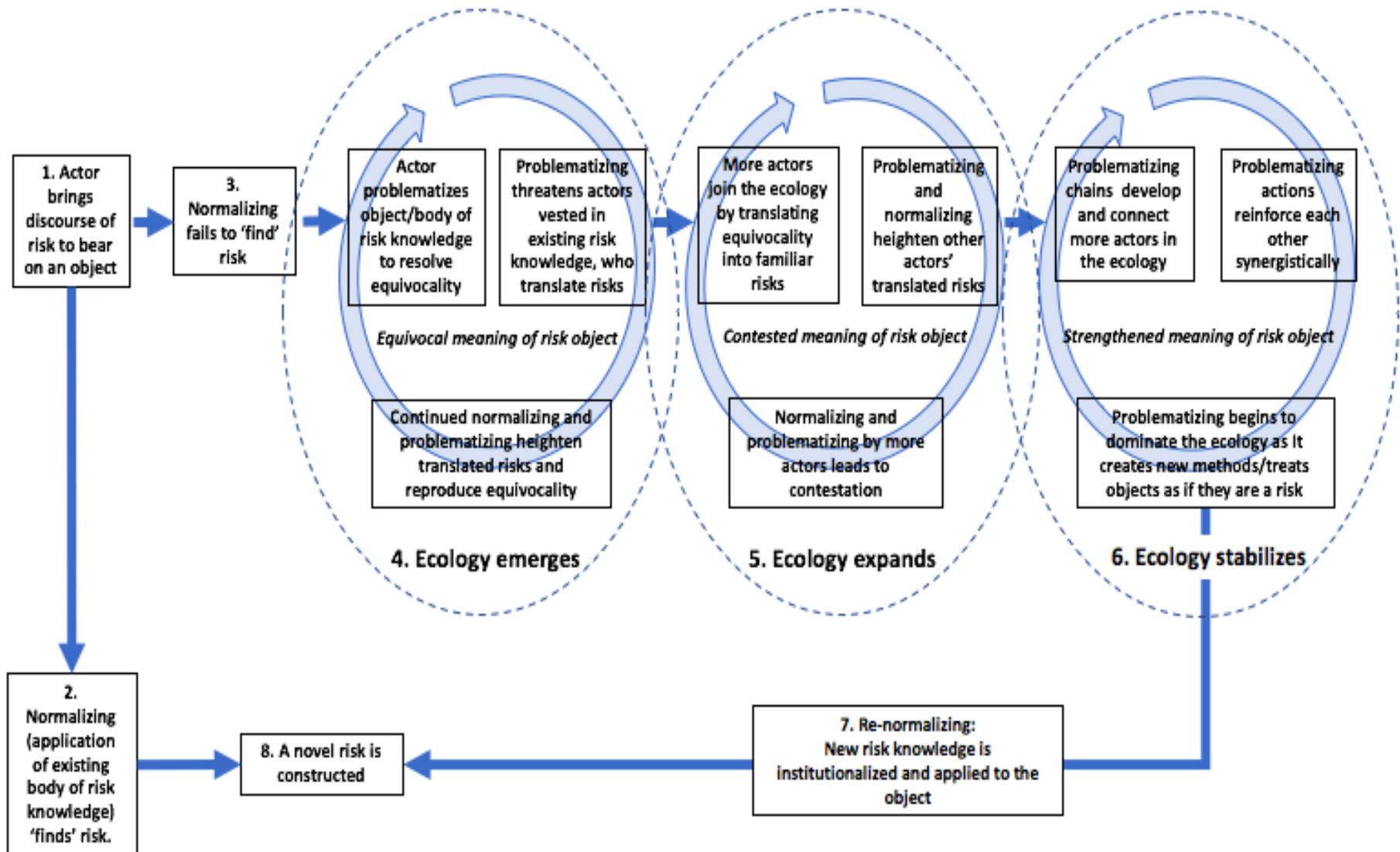
Legend	
----->	Normalizing risk management actions heighten translated risk
====>	Problematizing risk management actions heighten translated risk
====>	Problematizing risk management actions heighten translated risk and form part of synergistic problematizing chain
<b>End-Prof-Risk</b>	Endocrinologists' professional risk
<b>Tox-Prof-Risk</b>	Toxicologists' professional risk
<b>Man-Reg-Risk</b>	Chemical manufacturers' regulatory risk
<b>C-NGO-Rep-Risk</b>	Canadian NGOs' reputational risk
<b>A-NGO-Rep-Risk</b>	Australian NGOs' reputational risk
<b>C-Reg-Op-Risk</b>	Canadian regulators' operational risk
<b>A-Reg-Op-Risk</b>	Australian regulators' operational risk
<b>C-Ret-Rep-Risk</b>	Canadian retailers' reputational risk
<b>A-Ret-Rep-Risk</b>	Australian retailers' reputational risk

# Ecology of Risk (2013)



Legend	
	Normalizing risk management actions heighten translated risk
	Problematizing risk management actions heighten translated risk
	Problematizing risk management actions heighten translated risk and form part of synergistic problematizing chain
<b>End-Prof-Risk</b>	Endocrinologists' professional risk
<b>Tox-Prof-Risk</b>	Toxicologists' professional risk
<b>Man-Reg-Risk</b>	Chemical manufacturers' regulatory risk
<b>C-NGO-Rep-Risk</b>	Canadian NGOs' reputational risk
<b>A-NGO-Rep-Risk</b>	Australian NGOs' reputational risk
<b>C-Reg-Op-Risk</b>	Canadian regulators' operational risk
<b>A-Reg-Op-Risk</b>	Australian regulators' operational risk
<b>C-Ret-Rep-Risk</b>	Canadian retailers' reputational risk
<b>A-Ret-Rep-Risk</b>	Australian retailers' reputational risk

# Model of the process of constructing a novel risk



**Thank you**

Questions?