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# The Sendai Framework Eight Years On: Whither the "Science–Policy Interface"?

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## Commentary

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**Abstract**

This short commentary is a general analysis of the current state of the knowledge–policy relationship in the disaster field. This "science–policy interface" was described as fundamental in the 2015 UN Sendai Framework. However, midway to the 2030 deadline, there have been concerns from both the UN and academia about the lack of policy compared to research production. This suggests that barriers to this relationship may exist. To explain these, recent scholarship on factors influencing the general relationship between knowledge and policy is examined. Aspects of the "shape" of disaster research and its effect on policy creation are also examined, and a new direction is proposed. How the UN's initial approach plausibly did not support this interface is also explained; however, more recent advocacy suggests that the organization has taken a new approach that may prove effective. Overall, a debate within the disaster field about its role in policy creation may be necessary.

One of the 2015 UN Sendai Framework Priorities for Action from the *Sendai Framework for Disaster Risk Reduction 2015–2030* (commonly known as Sendai Framework) links disaster research knowledge with disaster mitigation policy production "to promote and improve dialogue and cooperation among scientific and technological communities, (and) other relevant stakeholders and policymakers in order to facilitate a science-policy interface for effective decision-making in disaster risk management" (Article 24, Section h) and " . . . use post-disaster reviews as opportunities to enhance learning and public policy; and disseminate studies" (Article 25, Section g).

Over the past 8 years, how well has this "science–policy interface" developed? So far, the general sense is that public policymaking has not been commensurate with knowledge production. A short 2018 piece entitled "Advancing population health science to public health policy" in the journal *Disaster Medicine Public Health Preparedness*, stated the society for disaster medicine and public health must unite "the many small, disparate, associations, centers, working groups, etc., that all have common goals (of) better preparing for and responding to catastrophic events, but, unfortunately, *lack the critical mass to translate efforts into effective public policy*" (italics added).[1]

Calibrating the threshold necessary to reach "critical mass" may be difficult; indeed, "effective public policy" may be simply rhetorical, since policy may never be sufficiently "effective" if disaster risk and frequency continue to increase. Nevertheless, a different disaster journal website has stated that, despite 27,000 disaster-related publications in the last 5 years, policy goals remain unsatisfied.[2] The UN itself has expressed similar sentiments. According to Article 28 of the Secretary General's report on the Sendai Framework's implementation, "A lack of action in passing legislation for disaster risk reduction presents a significant obstacle to effective disaster risk governance."[3]

This short commentary attempts to analyze the current state of the knowledge–policy relationship. Different factors are considered that may be acting as barriers to this relationship. Some may be generally inherent to this relationship, some specific to the disaster field, and some connected to the UN's approach to policy creation.

## Current Scholarship on the Academic Knowledge–Policymaking Relationship

The opening of Capano and Malandrino's review of recent research on the connection between academic knowledge and policymaking may startle some academicians: " . . . knowledge cannot directly impact policymaking but can have different roles within its scope."[4(p.401)] That is, while there may be certain conditions in which decision makers in the policy sphere are open to knowledge generated by the academic community, it is wrong to assume that knowledge will automatically be considered applicable to policy. This situation describes a conundrum: What is plausible from an academic approach is generally not useful in policymaking, that is, *our truths* may not cohere to *their truths*.

If this is the case, what are the conditions that can facilitate acceptance of academic knowledge? A definitive answer may provide a pathway to greater policy acceptance of

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knowledge generated by disaster research. However, even this basic question has been hotly debated by political scientists. Briefly, the debate is between two epistemological camps who champion either the *objective* or *subjective* character of knowledge. *Rationalists* prioritize the objective nature of scientific knowledge and posit that standardized methodologies tailored specifically for problem solving will result in greater acceptance. On the other subjective side, *constructivists* believe knowledge must be analogous to political and value-based viewpoints of policymakers. To summarize, knowledge must either be *for* or *in* policymaking.[4]

The existence of this debate indicates two fundamental and connected concepts whose understanding may prove useful to the disaster research community. These concepts are that knowledge has a "shape," and that policymakers are human and sensitive to the shape of knowledge. Consequently, knowledge that has a shape acceptable to policy decision makers may have a higher chance of informing policy than knowledge that does not. Empirical evidence from Capano and Malandrino's literature review appears to confirm this.[4] According to their results, the highest occurring barrier to knowledge acceptance is, in fact, the personal biases—values, ideology, and belief—of public officials. Perhaps relatedly, *actors' relations* (ie, the personal relationship between knowledge creators and knowledge users) are also reportedly the strongest facilitator. These results suggest knowledge's subjective shape which strongly determines acceptance or rejection in the policymaking process.

## Disaster Research Knowledge "Shape"

Disaster researchers may ask whether evidentiarily and ethically sound knowledge created through best practices has an innate appeal for policymakers. After all, journals and other academic publishers follow the highest academic and ethical standards to ensure that methods for data collection and analysis are trustworthy and that results are valid. Evidence of this validity is that the nomenclature for different categories within the field—"response," "recovery," "preparedness," and "risk reduction"—is recognized by the UN's Framework. Unfortunately, evidence type seems to have little effect on its acceptance compared to policymakers' ideations.[4]

Even so, we should continue trying to communicate knowledge, so how? What shape should disaster research take to facilitate its application to policy? There may be no definitive solution, but government reports suggest one approach. Response and recovery evaluated by the Social Recovery Reference Group of the Australian Department of Health and Human Services focuses on the unique effects of diverse policies across different communities.[5] Public sector members in post-disaster environments are described as individuals who contribute to outcomes unique to environment and disaster type based on competency and experience. This approach to policy description appears designed to counter blanket assumptions about "uniform" government disaster policy and may be appreciated by officials who are involved with community collaborative disaster risk management.[6]

Government reports attempt to elucidate both policy successes and failures. If knowledge must be congruent to policymaker viewpoints to be perceived as valid, research with an apparent inherent bias *against* policy can only expect limited recognition (except possibly from "small government" political conservatives, who may be wary of "throwing money" at a problem). This can present a challenge to some empirical investigations. Scientific research generally begins with null-hypothesis testing, that is, disproving "nothing is happening." The risk for qualitative post-disaster research (such as case studies) is that null-hypothesis testing can be operationalized into searching for negative effects stemming from inadequate government policy. In this case, *only if* negative effects in the form of community dissatisfaction are *noticeably* absent can public policy be perceived as "successful."

This is a very high bar to clear and possibly an unrealistic condition for "success." Post-disaster community recovery is a stressful time, and therefore dissatisfaction among residents should be expected. Even if the tone is not explicitly critical of government, investigating and elucidating government "failure" may be interpretable as general ambivalence toward government policy. This is especially risky in analyses of post-disaster policy in aboriginal communities[7,8] that may have legitimate historical reasons for ambivalence.

## Two Models and Their Shortcomings

The shape of research may be influenced by tone, and critical tone may be due to unreasonably high standards. However, this tone also may be innate to retrospective case-studies, which traditionally are the bulk of disaster research.[9] If so, then retrospective approaches could, in part, be responsible for the lag in policy creation compared to knowledge creation. Of course, this is speculative, but for the sake of self-assessment, it may be useful to consider whether knowledge in the shape of prospective models would be more effective. Given that effectiveness of prospective models may depend on the paradigm, special challenges to the disaster research field may exist here as well. For example, two of the most well-known social resilience models in disaster research are Social Capital and Collaborative Governance. Both present optimistic scenarios for pre- and post-disaster community engagement. However, both may also be problematic for disaster policymaking.

Social Capital interprets social networks as "resources" with highly generalized beneficial effects for community life.[10] These networks have varying levels of informality but usually are outside public administration, although the attitudes and behaviors associated with—or more accurately, considered as indices of—Social Capital may mediate individual-state relations. It has been used to analyze post-disaster resilience and recovery[11] but may not be useful for policy creation. The reason is because Social Capital as paradigm emphasizes *individual* participation in aggregate activity. Therefore, it may appeal to decision makers who conflate any social policy with socialism and are ideologically inclined to create *less* policy.

Another potential weakness of Social Capital that makes it difficult to instrumentalize is that it is essentially a compilation of self-reported indices encompassing a myriad of social interactions, where "effects flow from the information, influence, and solidarity it makes available to the actor."[12(p.23)] This creates conditions for the "ecological fallacy" assumption, where the presence of certain qualities are sought because they are strongly associated with other existing qualities.[13] In addition, the informal structures so valued by Social Capital observers can also have malevolent intent.[14]

Overall, the breadth of definition creates the risk of being meaningless through being all-encompassing. The definitional and epistemological instability of Social Capital as paradigm—that is, its "shape"—may make it difficult to propose as policy, save for "small government" conservatives who believe in limited policy directives. Collaborative Governance, another popular paradigm in disaster recovery research, is slightly different in that it more explicitly rationalizes government interaction. Unfortunately, it

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also suffers from the same inherent weakness of imprecision, since it defines any community-government co-production.[15] Consequently, model creation is important in Collaborative Governance research,[6,16–18] even as the causal paths linking theorized components within models have yet to be elucidated in actual practice.[19]

As analytical tools, models can be roadmaps toward a greater understanding of social behavior before, during, and after disaster models. However, "knowledge shape" models may or may not encourage policy creation or even be used as excuses to *abstain* from policy creation. This may be an institutional "blind spot" of the disaster research field. The UN may also, until recently, have had its own major blind spot limiting its approach to policy creation.

## The UN: Course Correction?

The UN Sendai Framework has four "priorities for action" as references for policy: understanding disaster risk, strengthening risk management governance, investment for resilience, and preparedness for response and reconstruction (also known as "Build Back Better"). Legislation is the means to fulfilling these priorities, so the United Nations Office for Disaster Risk Reduction (UNDRR) and the Inter-Parliamentary Union have published a 10-step "toolkit" that "parliamentarians can employ to effectively influence and implement DRR policy, legal, financial and oversight frameworks adapted to their country's context."[20](p.3) In short, the UN's approach was to pinpoint useful initiatives, and then trust state legislatures to enact them. This approach depended upon parliamentarian altruism to "foster development of multi-sector scientific, academic and technical agencies and institutions to provide knowledge, advice, oversight and innovation for DRR priorities and initiatives."[20](p.16)

Capano and Malandrino's review,[4] however, suggests this approach was limited because personal beliefs and ideologies strongly influence policy decisions over and above scientific evidence. In other words, proposals endorsed by science have little purchase with policymakers uncomfortable with science or heavily influenced by certain economic interests. The challenges faced by climate scientists and public health officials during the COVID-19 pandemic demonstrate that popular resistance can be summoned, despite overwhelming professional consensus.[21] These challenges indicate that a toolkit for *researchers* on how to communicate with and influence *parliamentarians* to pass legislation is also required; in that regard, the World Health Organization (WHO) has produced a useful guide for compartmentalizing data to aid communication with important figures in policy and logistics.[22]

To its credit, the Secretary-General's midterm review does in fact suggest it recognizes framing the need for disaster legislation in language appealing to policymakers on a personal level.[3] This new approach frames disasters as a financial risk, and several sections of the Secretary-General's report are devoted to this approach: " . . . the impacts of disasters have become a systemic financial risk" (clause 31); "The United Nations system, as well as international financial institutions and development banks, are working to develop tools, instruments and guidelines for risk-informed investing and financing for disaster risk reduction" (clause 36); "Public finance for disaster risk reduction should be strengthened with dedicated national funds for national disaster risk reduction, financing strategies and risk-informed budgeting across sectors and at all levels" (clause 37); and "The United Nations system work with international financial institutions and development banks, credit rating agencies, the insurance sector and the financial services sector, to accelerate the development of innovative instruments, tools and guidelines for de-risking investments" (clause 73j). In contrast, references to academia's role are limited to 2 general statements at the beginning and conclusion of the report.

In short, the UN has begun emphasizing that good policy mitigates future costs. This approach may be seen as more practical given the sway that worldwide finance has on political life. Furthermore, financial organizations have expressed similar interests: The World Economic Forum (WEF) published a long report on disaster risk management 5 years prior to the Sendai Framework[23] and this year with international consultant Deloitte published its own "toolkit" on how business managers can incorporate ecological factors in decision-making.[24] In 2019, the UN and WEF signed a "Strategic Partnership Framework" continuing to 2030, the same deadline as the Sendai Framework, which could indicate the UN's desire to establish some level of accommodation with the financial sector.

## Conclusion: Whither the "Science–Policy Interface"?

The UN's current approach to disaster policymaking seems dramatically different from its approach originally outlined in 2015, and academics may validly feel displaced. However, those in academic work may have another avenue toward relevancy. The UNDRR strategy to achieve the goals of the Sendai Framework depends heavily on international networking.[25] This has two indications for the knowledge sector. First, from a methodological perspective, it may point to more research that is collaborative across different populations as opposed to local case studies, possibly guided by WHO standards.[26] Second, if academics successfully network, they may form that "critical mass" necessary to influence policy through the UN contiguous to policy also informed by financial considerations.

These strategies may appear like an overly indirect way of contributing to policies. However, given the barriers to directly influencing parliamentarians, achieving the desirable "science-policy interface" may require a multifarious approach. Moreover, for Environment, Health, and Climate fields in particular, " . . . the role of evidence and knowledge might be significantly bordered when issues are treated ideologically and become a matter of political conflict."[4(p.417)] Since administrators are sensitive to the ways their roles are portrayed as they work to implement existing policy, it may also be necessary to lower the threshold for assessing "successful" policy outcomes in some case studies. These are all considerations connected to the "shape" of knowledge generated by research. Simultaneously, "shape perception" can change, for example, if there is wider public recognition of scientific validity. In representative democracies, this could influence policy creation, as has occurred in Japan since the 2011 Northeast earthquake disaster; the Tokyo municipal government regularly issues data-rich estimates of damage from a future quake.[27] Of course, research for its own sake is also valid, and it is possible the disaster research field has evolved where it can have both "pure" and "applied" disciplines (like mathematics). This is a debate within the field itself, based on a realistic assessment of its relationship to policy creation.

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