

Moving Beyond Social and Epistemological 'Bundan' in Fukushima

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Since March 11, 2011, the name "Fukushima" has become synonymous with the notion of "compound disaster," a relatively new class of catastrophes comprising cascading failures of multiple, complexly interacting systems, both natural and technological. Due to the damages inflicted by the tsunami on the Fukushima No. 1 nuclear power plant, eastern Japan now faces a crisis of ongoing radioactive leakage with the unremitting threat of an even more spectacular release of additional radiation into the environment. These events have contributed, in turn, to social and epistemological crises, including an apparent crisis of confidence in experts and authorities, particularly vis-à-vis the reliability of their knowledge claims about radiological risk and public health. But the controversies over this knowledge, and the credibility of the experts and other claimants to knowledge, remain understudied and difficult to characterize with any nuance. In particular, it is difficult to find accounts of these controversies that treat contending social groups even-handedly, without privileging one perspective or another. So how are we to make sense of them? Surely, there are lessons to be learned in Fukushima about science communication, lay/expert engagement, and the production and circulation of knowledge about risk. Yet, before we reach for answers, how do we even begin to formulate the questions? This paper briefly attempts to clarify the challenges in Fukushima in such a way as to chart a path for scholars to make sense of them and, thus, to begin working toward appropriate and effective analyses and interventions.

Recall that *kizuna* (bonds, ties) was Japan's word of the year in 2011, just as *tsunagari* (connection) had been a popular buzzword following the Great Hanshin-Awaji Earthquake in 1995. These words express the affective sense of communal togetherness, shared suffering, and shared hope in the aftermath of tragedy. They also describe empirical strategies for recovery, as the *hisaisha* (disaster-struck people) of Tōhoku have been learning and receiving help from the *hisaisha* of past catastrophes, such as Kobe, Niigata, and elsewhere. Yet in Fukushima, as some observers have noted, over the last several years the operative keyword might just as well have been *bundan* (division, disunity) (Takagi 2013, Rangieri & Ishiwatari 2014). There, an involuntary diaspora has shattered communities. Former residents of this geographically large and diverse prefecture have scattered across Japan. The restricted zone around the nuclear power plant has separated many from their *furusato* (hometown) and their ancestral homes (Murakami et al. 2014, Vollman 2015). In addition, different forms of social stigma and suspicion — around contamination, around *hisaisha* or evacuee status, around questions of exploitation — rage tragically amongst individuals and groups (Heath 2013, Kageyama 2014, Saito & Slodkowski 2014).

But these are not the only forms of *bundan* that are rending the people of Fukushima apart. Distrust of authorities and state-aligned experts is intense and endemic, as it is widely felt that they failed to adequately protect residents and may have misled the public about risks. Thus, Fukushima is also afflicted by a kind of epistemological *bundan*, particularly around the issue of radiological risk (cf., Shineha & Tanaka 2014).

Toxic contamination, such as radioactivity, is known to induce a powerful and uncanny dread in human beings (Erikson 1994). It is an invisible agent of ruin, inscrutable to all but

experts and esoteric detection devices. This moves questions about the knowledge of risk and uncertainty, and the proper roles of experts, to the center of public concern. The common and viscerally felt *need to know*, concretely, the extent of the threat and the safety status of one's person and one's family, combined with the apparent unreliability of official statements and the inherent difficulty of perceiving radioactive danger, have led many people to generate their own data. Citizen science projects such as Safecast have proliferated in an attempt to generate "open source" data and trustworthy knowledge about radiation levels in foods and landscapes (Murillo 2013, Abe 2014), even though making sense of the data produced by various detection regimes may be far from straightforward (Sternsdorff-Cisterna 2012).

More data does not always clarify. The Fukushima Health Management Survey was launched, in part, to track the possible effects of radiation on the health of the prefecture's inhabitants. Over half a million residents have participated in the basic survey, and nearly 300,000 children have undergone ultrasound thyroid screening, with over a third of those having undergone complete thyroid examinations (FHMS 2015). The results have fed into ongoing controversy. As Ash (2013) shows, some mothers of children with thyroid cysts, identified in the vast dragnet of the the survey, refuse to accept researchers' statements that no etiological conclusions can be drawn since the unprecedented study included no sufficiently comparable control group.

Controversies rage over three distinct but related questions pertaining to radiological risk in Fukushima Prefecture (and thus ultimately informing debates over the viability of nuclear power in Japan): *where* is the radioactive contamination? *How much* is there? What level of *exposure*, if any, is safe for human life? These deceptively simple queries turn out to be

remarkably difficult, complicated, and contentious questions to answer. Even the scientists and physicians who study the health effects of radioactive contamination in Japan, for example, continue to debate the question of safe exposure. Does biological damage increase proportionally to exposure (the linear no-threshold or “LNT” model)? Is there some level below which damage is negligible (the threshold model)? Do low doses induce increased biological repair mechanisms and thereby actually enhance health (the hormesis model)? Or is some combination of these models most accurate, depending upon dose rates and other parameters? Experts have been debating these crucial questions for decades (Onaga 2013), and in fact, they remain unsettled today (Normile 2011).¹ Yet, when those experts are charged with communicating in public, they sometimes seem to downplay or elide these debates and appear to emphasize one model or another. Why? What is going on?

Two standard narratives have developed, each of which purport to explain the situation in simplistic terms. Thus far, journalistic and scholarly accounts largely agree that lay citizens are intensely concerned about radiological risk, even though many experts have said publicly that the risks to individual and public health appear to be insignificant (Brumfiel & Fuyuno 2012). This starkly portrayed gap is explained by both narratives: either the experts are “correct,” and people are over-reacting; or the experts are insensitive, inept communicators and “wrong” — if not maliciously misleading — while lay residents’ understanding of the risks is more appropriately contextualized in local life, if not more accurate (e.g., Figueroa 2013, Ropeik 2013, Tabuchi 2013, Mockenstrum 2014, Wingfield-Hayes 2014; cf., Ash 2013).

The outlines of these stories are almost comfortingly familiar, each conveying its own,

recognizable moral: science is the supreme way of knowing, and ignorant and emotional lay people reject its truths to their detriment; authorities and technocrats act only to preserve their status, indifferent to local conditions and the situated character of knowledge. Could it possibly be that such facile narratives satisfactorily explain the texture of experience and controversy in Fukushima?

Consider, for example, the following vignette: physicians and scientists, some of whom had devoted their early careers to helping *hibakusha* (A-bomb victims), came from places like Hiroshima and Nagasaki to study exposure in Fukushima, with apprehension about what they might find. What they found gave them a measure of relief, and they were pleased to announce their somewhat reassuring research results. To their shock, they were pilloried by the public for colluding with the government. Yet, contrary to their public portrayal as negligent and defensive, this turn of events has prompted introspection, both formal and informal, amongst many. Some have proactively sought the aid of scholars in fields such as science and technology studies (STS) and public engagement with science (PES), including this author, in an effort to expand their understanding of the public and issues with communicating knowledge about science and risk. Although initially many of them expressed a desire to learn how they could “more accurately communicate scientific facts,” as a result of these interactions they have come to recognize and embrace critiques of the “deficit model” of an irrational and factually ignorant public, and begun to rethink their own roles and approaches. In short, this vignette draws attention to the diversity and situated complexity of social actors, including their dynamic capacities for growth and change, regardless of how they may be categorized in the morality tales of the day.

For four years the people of Fukushima have suffered biblical plagues of *bundan*, stunting and sabotaging the recovery of their communities. Fukushima's story and the lessons to be drawn from it are undoubtedly more complicated than they seem superficially. The categorical nature of the presumed gap between experts and lay residents must be interrogated. Studying this gap, and how it has come to be characterized, may shed light on the dynamics at play in the framing, production, and circulation of knowledge of risk. We stand to learn something about the construction of epistemic credibility, moral trustworthiness, and expertise among different groups claiming to speak knowledgeably about natural and technological risk.

What began four years ago, with the violent rupture of a rift in the earth's crust, appears to have led to rifts between people, split along fault-lines between different ways of knowing. Lest we scholars also be caught up in the dynamics of estrangement, it is incumbent upon us to identify and fully understand the complex character of these social and epistemological fissures, as a hopeful first step toward effecting their remedy.

Notes

1. And this discussion only focuses on those experts concerned with effects on human biology. Researchers in orthogonal fields such as bioecology have found compelling evidence of radiological damage to the flora and fauna of Fukushima Prefecture, consistent with similar patterns of damage around Chernobyl (Mousseau et al., 2014), adding further layers of complexity and intrigue to the debates.

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