

# *IRAS @ 60 and the Future of Religion and Science*

with Karl E. Peters, "The 'Ghosts' of IRAS Past and the Changing Cultural Context of Religion and Science"; Michael Ruse, "Why I Am an Accommodationist and Proud of It"; Nancy Ellen Abrams, "A God That Could Be Real in the New Scientific Universe"; Whitney Bauman, "Religion, Science, and Globalization: Beyond Comparative Approaches"; Zainal Abidin Bagir, "The 'Relation' between Science and Religion in the Pluralistic Landscape of Today's World"; Sarah E. Fredericks and Lea F. Schweitz, "Scholars, Amateurs, and Artists as Partners for the Future of Religion and Science"; and Willem B. Drees, "From Authority to Authenticity: IRAS and Zygon in New Contexts."

## RELIGION, SCIENCE, AND GLOBALIZATION: BEYOND COMPARATIVE APPROACHES

by Whitney Bauman

*Abstract.* Using case studies from the Indonesian context, this article argues that the current truth regimes we now live by are always and already "hybrid" and that we need new methods for understanding meaning-making practices in an era of globalization and climate change than comparative approaches allow. Following the works of such thinkers as physicist Karen Barad, political philosopher William Connolly, and eco-critic Timothy Morton, this article develops the idea that an event-oriented or object-oriented approach better captures our hybrid meaning-making practices. Not only that, but it also provides a lens through which to understand traditions as polydox (rather than orthodox) and the rise of "modern" science as itself a planetary (rather than a Western) phenomenon.

*Keywords:* Gilles Deleuze; emergence; methods; new materialism; ontology

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If I were to hop into a time machine, fly 200 years into the future, and look back at the phenomena that mark this period of history, I would wager that looming largest among those phenomena would be globalization and climate change. Although many scholars are beginning to discuss this period of geological history as the Anthropocene, I would argue that naming

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this moment in Earth's history after one of the planet's dominant species might just be a reinforcement of the anthropocentrism that contributed to the very problems we now face. The thinking might proceed as such: if the problems we now face are largely human-caused, then humans will be largely responsible for solving planetary problems. The solutions to our problems, then, will be more of the same logic of mastery and control, of stewardship or management, that got us to this point in the first place. Admittedly, I do think that humans have a large responsibility for the planetary problems that we now face, so this is no mere apologetic for continuing to live "as usual." However, I also argue that there is a certain amount of hubris tied to the idea that the salve of the Anthropocene will come entirely from anthropogenic solutions. We are part of an evolving planetary community and not the sole agents of the world. Thus, this article will explore new ways of thinking about responsibility and agency beyond the idea of individual and human agency, and along with them, new ways of thinking about the relationships between "science" and "religion."

Why the need for new ways to think about agency? Quite simply, I argue that understanding agency and responsibility at the individual level abstracts individuals (or objects and events) from their relationships with the ever-evolving planetary community. In addition to the responsibility of individuals, we need to ask how agency works at multiple levels of life—evolution, quantum, social, historical, ecological, cosmic, and so on—which put individual actions into a context with the rest of the planetary community. Doing so might enable us to see the ripple effects of our own actions and how they affect other organisms both present and future, and how our own actions are shaped by bio-historical flows from the past, and hopes and dreams for the future. This need for analyzing distributed agency arises especially now because of two phenomena that largely define the planetary community: globalization and climate change.

Globalization is defined here as the "space-time" crunch brought about by increases in the speed of transportation, communication, and production over the last 400 years. Some refer to this phenomenon as social acceleration (Rosa and Trejo-Mathys 2015). Whatever one calls it, our lives are crisscrossed on a daily basis by global flows of information, energy, and materials. One cannot eat a meal, read a book, or take any form of transportation from one place to another without becoming entangled with global flows. Furthermore, these global flows of information, energy, and materials are accelerated by fossil-fueled and increasingly nuclear-fueled economies (Nixon 2013, 69–102). These energies and the technologies based upon them allow us to move at such a fast speed that some are beginning to ask if this fast pace is outstripping the regenerative capacities of our very planet (Brennan 2003, 22–34). In other words, what is all this speed doing to earth bodies? We live in a world that is increasingly inequitable, where one fifth of the global human population lives at the expense of

four fifths of the world's human population, not to mention all the other species and life-forms on the planet. Our fossil-fueled dreams and realities may be a huge contributor to the social and ecological ills that we face as a planetary community. Do not get me wrong—globalization is not all bad and some of the benefits will be discussed below, but it is clearly tied to planetary problems such as climate change.

Climate change, or global warming, is the second related phenomenon that marks the contemporary planetary community. For about 10,000 or so years, the planet has enjoyed a relatively stable climate and this stability has become the primary habitat for the human civilizations that have thrived during recorded history. All of our systems of knowledge—religious, philosophical, and scientific—have emerged during this period of relative climate stability. However, now, just as once an asteroid led to great changes in the planetary community and the end of the dinosaurs, the increased level of greenhouse gases due largely to human globalization are beginning to shift the climate. These shifts have huge effects on our understanding of “nature” as something that is basically stable, separate from humans, and which can be controlled by better science and technology. In this period of shifting, we are beginning to discover that nature is not in stasis but always changing, that humans are a part of the planetary community, and that our capacity for reason cannot entirely manage the present and future of the planetary community. This is precisely the point Heidegger was trying to make in his *Question Concerning Technology*: viz., we cannot enforce human reason upon the world or we make the entire world instrumental to human reason (Heidegger 1977, 3–35). We are of and for the planetary community and perhaps ought to begin to act with Earth-others rather than as managers or stewards of the entire planet.

It is because of the shifts in nature and human identity brought about by globalization and climate change that new understandings of agency and responsibility are called for. Such an understanding should blur the boundaries between self and other, human and nonhuman, organic and machine, and even the academic disciplines such as science and religion (e.g., Haraway 1990, 149–82). In a world marked by climate change and globalization, the local is never separate from other locales or the global, the self is never separate from the other, humans are never separate from the bio-historical flows that make up humanity and all other life on the planet, and systems of knowledge are just different ways of organizing information rather than necessarily something inherent to the ongoing process of life. Before moving into three case studies that might help us to understand new ways of thinking about agency and responsibility, here I first discuss “new materialisms” and “object- and event-oriented” ontologies as a way to rethink our relationships to human- and Earth-others, and with that the boundaries between categories such as science and religion.

NEW MATERIALISMS, AND EVENT- AND OBJECT-ORIENTED  
UNDERSTANDINGS OF REALITY

At the expense of combining too many theories here, I want to examine three moves of “new materialisms” (e.g., Barad 2007; Bennett 2010) and more specifically of object- and event-oriented understandings of new materialisms (e.g., Morton 2013a; Harman 2010) that are beneficial for understanding “religion and science” on a planet marked by globalization and climate change. The first has to do with a redistribution of agency, the second with a multi-scalar analysis, and the third with an inherent agnosticism and polydoxy that marks all ways of knowing within the planetary community. If we are but one among many creatures on an evolving planet, then the future is indeed open and all attempts of mastery and control become what Whitehead referred to as “misplaced concreteness” (Whitehead 1925, 51–58). In other words, the really real is the flow of things or the interactions between and among evolving organisms, and stability is the abstraction from this flow. Reifying stable structures and concepts out of the ever-changing reality is all right, for a time, but can become problematic when our reifications are mistaken and defended as reality *en esse*.

One such reification has to do with the idea of agency and where agency is located. Here I am looking at agency as not merely the capacity for moral, responsible action, but the capacity for action in general. Just as emergent theorists want to re-imagine causality beyond efficient causality to include formal and final causality (Deacon 2013, 34), so here I would argue that we need to re-imagine agency as the ability to respond, and not only as responsible action. Responsible action is a highly complex form of agency, but it is couched within many different types of agency that can be found from the smallest to the largest levels of reality.

Much philosophy, particularly within the liberal Lockean stripe, places ultimate agency and responsibility in the realm of human beings. This particular strand of thinking about human beings has theological roots in the *imago Dei* tradition which, from one interpretation, suggests that humans alone are made in the image of God. Even in Vedic traditions, one must be reincarnated as a human (and often a male human) before one is able to achieve *moksha* or liberation. This locus of agency within the human suggests that humans are the active agents in the world (and within that category, historically, only certain humans) while all others are passive recipients of this agency. (e.g., Merchant 1980) Such an understanding of agency “backgrounds” the ways in which other life-forms, organisms, and processes guide human and individual actions on a daily basis (Plumwood 2002, 27). New materialisms, in part, are an attempt to return agency to the rest of the natural world, “all the way down” to the quantum and sub-quantum levels, to hyperobjects and even the cosmos, and to both the material and ideal (or scientific and religious?) realms of life.

Karen Barad, in agreement with many process thinkers, argues that even at the quantum level there is some amount of agency or freedom of becoming (Barad 2007, 132–88). Of course, like other forms of agency, these “choices” are highly shaped by the habits, processes, and entities that lead to a given moment. For example, I sit here and type, but this is not merely because I have all the agency over this computer: the language I use, the evolutionary trajectories that lead to *Homo sapiens*, the energy, technology, and the food I eat that keeps my neurons firing all play a role in my ability to sit here and type these words (not to mention the coffee that keeps my neurons firing). I would not be able to type these words without all of these agents, nor would I have the choice to type in a certain way or another (the QWERTY keyboard determines how I type these words). Furthermore, the choices I do make are limited by these other forms of agency: by the history of thought, evolutionary history, and the history of what specific languages can tell us about the world around us. Such a distributed notion of agency calls for a complex and multi-scalar analysis of any given event or object.

If agency is redistributed to include the rest of the natural world, technology, and what Timothy Morton refers to as “hyperobjects” (such as climate change, a city, or an electrical grid), then what becomes the scale of analysis when we are looking at a given situation, incident, or problem? (Morton 2013b) This poses a particular problem for thinking about politics and ethics because it poses problems for our understanding of responsibility. If the unit of analysis is no longer the individual agent, then our legal and political systems need to be rethought. Unfortunately, thus far the legal system has been unable to think outside of individual rights: hence animal rights discourse and the legal determination of corporations as “individuals.” Neither animals nor corporations are individual human beings, yet when we try to bring these entities into legal and economic relationships with human beings, we reduce them to the abstracted concept of the individual human level. While thinking about various entities and levels may be quite a deal messier than reducing all entities to the level of “individuals,” this is no reason to give up and stick to what is most politically, legally, and economically expeditious. In fact, the drive toward efficiency, it might be argued, is what helped create many of the ecological and social problems we now face today in a globalizing world (Rosa and Trejo-Mathys 2015, 50–59).

Instead of striving toward what is efficient, why not recognize the queer, shifting, interrelated boundaries of all the things we tend to think of as distinct individuals? Why not think of all events and organisms as assemblages of multiple, becoming Earth-others? (Deleuze and Guattari 1987, 2–26). From this perspective, we understand that agency is distributed across a wide range of organisms and events and that abstracting a single event or object out of the process will give us a distorted view of agency,

responsibility, and culpability. To see an event, organism, or entity in its web of interrelated surroundings may enable us to develop a larger picture that goes beyond mere efficient causality and one that begins to address structural and long-term systemic issues. Just as film negatives are not the same as the final picture viewed with the naked eye, so efficient causality is necessary but not sufficient for understanding all the reasons behind a given event, phenomenon or circumstance. If we begin to look at the actants that lead to the whole developed picture, we might better realize that knowledge is always and already perspectival and context/question-dependent.

As Mary-Jane Rubenstein notes in her most recent book, what we know about the universe may not matter as much as the questions we pose to the universe: “the shape, number, and character of the cosmos might well depend on the question we ask it” (Rubenstein 2014, 235). The insight she picks up on here, following Karen Barad and other thinkers of the New Materialism, is that our universe may be open and indeterminate (Barad 2007, 97–130). Put another way, there is no one way for the universe to become in the next moment, although it is probabilistically structured to become in certain ways rather than others. One implication of this idea is that there can be no final knowledge or ultimate knowledge from within our location in an evolving, agential, community. Taking the film metaphor a step further, we cannot tell what the developed film will look like based solely on viewing the negative with the naked eye. There is a certain amount of freedom that cannot be predetermined depending on how the film is developed or what “filters” might be used in developing the film. Furthermore, once we come to a new understanding or picture of the world/universe/life, there will be a new horizon beyond which we cannot see and within which we will be located. There are always different filters we can apply to photos that will help them develop in different ways. These horizons (or filters) shape our perspectival ways of being and becoming and are not subsumed by new horizons; rather, just as different filters do not negate the development of a photo under another filter, so different horizons are just shifts that help shape our worlds into different ways of becoming. These horizons are different for different peoples, animals, organisms, and entities. This is not a cry for relativism, and there are “common grounds” that we might be able to agree on (there are negatives after all, or at least common elements that are being captured in a photograph), but it is a cry for polydoxy, multiperspectivalism, and unknowing at the edges of our knowledge (Keller and Kearns 2007, 1–20; Keller and Schneider 2010; Bauman 2014).

Planetary shifts, in large part because of the phenomena of globalization and climate change, have then led to a rethinking of agency, the need for multiperspectival/scalar analyses of any given situation, and polydoxy and agnosticism in our understandings of the world. This means, among

many other things, that the methods for analyzing situations from within academic disciplines need to shift as well. For instance, the study of comparative religions no longer really works because people are becoming more and more hybrid in their religious practices, and because we now recognize that religions have always shaped one another and co-evolved; in other words, there have never been discreet traditions. Science and religion, too, must move beyond models that understand science and religion as discreet entities or analyses brought to a given situation, and toward models that understand them as always and already together. Science in a major way has emerged from and been shaped by religions all over the globe, and in turn it shapes and changes religions through continuing interactions. Models that assume dialogue, two languages, conflict, or integration all assume that “science” and “religion” are discreet entities that come into relation with one another. What we need is an understanding that sees both science and religion as formed together through their multiple interactions in specific ways. In order to highlight how new models might be useful in this context, I move to an examination of three different events/objects in order to illustrate the always already togetherness of multiple religious traditions, sciences, and bio-historical flows.

#### THE ENVIRONMENTAL PENSANTREN

“In order to be Halal today, you must be an environmentalist.” (Iskandar Waworunto, Bumi Langit Institute, November 9, 2013)

The Bumi Langit Institute, also known as the “environmental peasantren,” is situated on the island of Java, about an hour outside of Yogyakarta, Indonesia. The director and proprietor of the institute, Iskandar Waworunto, comes from a Sulawesi-Catholic and Dutch-Jewish family. Already, in order to tell his story, we need to tell the story of colonization on the islands of Indonesia, of the global market of sugar, of Christian and Jewish history, and of the waves of various religious traditions—predominantly Hindu and Muslim—that have swept across the Malay archipelago and become part of the fabric of local cultures. However, here I will focus on how Waworunto became the director of an environmental, Muslim community center from his background in Sulawesi.

As mentioned, he grew up with Catholic and Jewish family members. Self-reportedly, he was more or less “spiritual” as a teenager but not really religious in any way. His coming of age was during the 1970s, at which time he learned of and was turned on by the environmental “hippy” movement. He and some other friends decided to move to the Sumatran rainforest and start a self-sufficient commune of sorts. However, not knowing much about growing food, building shelter, and living sustainably, the

commune broke apart, at which time he moved to Bali and began his own organic farm (which his son still runs). He learned the principles of biodynamic farming from Rudolf Steiner's work, which is part environmental/scientific and part spiritual/religious in itself. At some point during his tenure in Bali, he began to read the poetry of Rumi and was turned on to Sufism. He then felt "called," as he puts it, to convert to Islam and bring his farming practices and environmental principles to the Muslims of Indonesia. So he moved from the predominantly Hindu Island of Bali to the predominantly Muslim Island of Java, and started the Bumi Langit Institute (Waworunto 2013).

What is important here is that central to his message of Islam is the message of environmentalism. As the epigram of this section suggests, he really believes that being a good Muslim, in the context of our planet today, means being an environmentalist. Hence, his "pesantren" hosts workshops on organic/biodynamic farming principles, sustainable energy, sustainable housing and water systems, and a whole host of other "green" ways of living, as part of promoting an environmental interpretation of Islam. This is an example of what Mary Evelyn Tucker calls a world religion extending its circle of ethical concern to the entire planetary community (Tucker 2003). Such an extension comes only through the recognition of our context as planetary creatures. In other words, the sciences of evolution, ecology, and even cosmology that give us our place in the world as one creature among many are what infuse Waworunto's contextual understanding of Islam. The point is not that his understanding of Islam is contextual in relationship to some orthodox understanding, but rather that all understandings of Islam (or any other religion) are contextual: hence polydoxy.

Just as during the Golden Age of Islam, Muslim scholars took up natural philosophy and began to make many advances in what would become modern Western science, so here a Muslim activist takes up science to help green Islam and address planetary ecological crises. This version of Islam would be impossible without globalization, climate change, the environmental movement, environmental sciences, and so forth. It is because of all these events and planetary flows that the Bumi Langit Institute exists. One cannot understand its existence apart from the rich interrelationships with religions, sciences, and histories in which it is embedded. Furthermore, if one were to take a "comparative" approach, how would one decipher what was "religion" and what was "science," or what was "environmental" vs. what was "Islamic?" As Keller notes, "There is emerging a planetary spirituality of the interstices. No locality can be located apart from its interrelations. Close and alien, intimate and systemic, they add up to the whole" (Keller 2005, 130). There is, thus, a real need to move beyond comparative and disciplinary approaches to understanding the world around us.



## THE JAVANESE JESUS

In the small community of Ganjuran, Java, Indonesia, just a couple of hours outside of Yogyakarta, there is a beautiful Javanese-style Catholic church. If you are not familiar with Javanese architecture, I highly recommend you do an Internet search for it. Traditional Javanese buildings are open to the elements, may not have external walls, and often have ornate details on every surface. This church is no different. Just next to the church sits a Hindu-style shrine that contains a statue of a Jesus, which is dressed in traditional Javanese clothing. This statue is informally known as the “Javanese Jesus.” (To see images of the Javanese Jesus see, e.g., Marco 2013.) Around the courtyard of the shrine to the Javanese Jesus are carvings of the stages of the cross. All of the figures in these carvings are also done in traditional Javanese style.

On any given day, one can see local people and tourists from many different religious backgrounds crawling up the stairs to touch the feet of and pray in front of the Javanese Jesus: Christian, Muslim, and other. This statue has taken on a significance of its own and people pray to it for health, for fortune, and for other reasons. This type of statue is not the only one around Java: there are, for instance, old Hindu fertility temples at which one finds Muslims and all sorts of others praying to be blessed with children. The Javanese Jesus, as well as these other objects, brings together multiple planetary flows into an all-together new form of meaning. In other words, the meaning resides in the contextual relationship out of which the object emerges. Far from being a mere mixture or combination of a little Christianity here and a little Hinduism there, new meaning emerges from the relationship between multiple factors, and from the objects ongoing relationship to multiple actors who visit the Javanese Jesus. In the words of emergent theorists, something more comes from “nothing but” (Goodenough 1998, 28–30).

To dissect just a few of the hybrid, planetary flows, we might take a look at the history of colonization. The church was built by Dutch Catholic sugar factory owners in an effort to convert the Javanese factory workers. Hence, the history of sugarcane and the world’s global sugar market has some responsibility or agency in the emergence of the Javanese Jesus. Or, we might begin with the history of Christianity, which itself emerges over a few centuries out of its hybrid Ancient Near East contexts. All of the flows that go into the development of early Christianity and Christianity itself are therefore actors in the emergence of the Javanese Jesus. Or, we might begin with the spread of Hinduism throughout Indonesia, which made a mark on local Javanese traditions to such an extent that it is now impossible to tease out what Javanese traditions are isolated from the influence of Hinduism. These local traditions, known in Indonesia as *adat*, are infused with everyday life in Java regardless of whether one is Muslim or not. In fact,

all of these stories and more become part of the story of the Javanese Jesus. Out of these stories comes a new story, a new agency, “something more from nothing but.” Out of these planetary flows—colonization, global sugar markets, Christianity, Hinduism, etc.—emerges a new agency in the very object of the Javanese Jesus.

In a very real sense, we can say that the Javanese Jesus, once it emerges, returns to affect the becoming of other planetary bodies. The gravity of the object draws people to it and the meaning it gives to people affects their daily lives. The effects of the Javanese Jesus materialize in the world through the actions of bodies that are affected by its meaning, its gravity, its influence. Can we not, then, argue that this too is a form of agency? Some would argue no, of course, but I argue that the primary reason for rejecting this as a valid form of agency has to do with the shrinking of agency to individual humans with a capacity for instrumental reason. Through a long process in Western history, agency—not to mention responsibility and ethical concern—has been narrowed to only apply to efficient causality. This anemic form of agency is also supported by the science of instrumental reason which orders the entire world according to (some) human(s)’ needs. From the Cartesian *cogito*, to Locke’s individual private property, to the Reformation, Industrial Revolution, and on into the contemporary “global” market, this efficient causality and instrumental reason has literally allowed us to move at an increasingly faster and faster pace (Rosa and Trejo-Mathys 2015). This pace in fact dictates that we either move with it, or get left behind. How does one survive in a university setting without being wired or having a personal computer? How does one keep up with friends and family in a meaningful way without the immediate contact made available through cell phones? The narrowing of agency to individuals is precisely what allows for systems to move at this efficient speed, yet, this increased speed is also that which makes the hybridized and mixed worlds in which we live. In other words, the very speed of the movement of energy, materials, and information is what allows for something like the Javanese Jesus to exist, but our systems of analysis—intellectual, economic, political, and legal—still rely on compartmentalized and comparative approaches.

I would argue along with many others that this pace of global acceleration both relies on the efficiency of cutting the world into discreet entities, and it also undoes the illusion of discreet entities. Our addiction to speed is the oroborus eating its own tail, and indeed we are outstripping the planet’s capacity for regeneration (Brennan 2003). To sit with and reflect upon the agency of the Javanese Jesus is to slow down and rethink agency and relationality. It is to rethink the categories of analysis by which we understand the world and to realize that it is much messier than we can ever imagine. Reflecting on our embeddedness in these webs of relations may just help us to create new, unforeseen ways of being/becoming in the world that do not commit the misplaced concreteness of individualized

agency, actions, and responsibility. Here, toward the end of this article, let me begin to reflect on how we might rethink responsibility, ethics, and politics in the face of wicked, complicated problems.

### THE LAPINDO MUD DISASTER

As mentioned earlier, wicked problems are multigenerational, have no single solution, and are such that every solution to part of the problem leads to new problems that call for ever more, different solutions (Rittel and Webber 1973; Jenkins 2013, 149–89). In a word, these problems are entangled. The solutions are perspective-dependent, and no single solution will be equally helpful for all of the stakeholders involved. In many ways, the hybrid and globalized contexts described above shed light on the fact that our problems are always and already wicked, we just have tended to narrow causality and solution-based thinking to efficient causality and instrumental reason. We project parsimony where none really exists. Wicked problems are a way of naming complexity and a way of acknowledging, as emergent theorists do, that there are multiple types of causality—efficient, material, formal, and final—and, along with event and object-oriented ontological thinkers, that agency is relational and distributed over time rather than solely isolated in individual actors.

If this is the case, then how do we think about doing ethics and how do we think about our own responsibility for our actions in the world? If, as Hannah Arendt's political philosophy suggests, we can never really know the chain of events our actions will set off, how do we make responsible decisions? (Arendt 1958) The best way to begin to address this problem is to provide the reader here with yet another example from the Indonesian context: the Lapindo mud disaster.

On May 27, 2006, a 6.3 magnitude earthquake occurred on the Island of Java, the epicenter of which was near Yogyakarta. Just two days later, at a drilling site about 150 miles northeast of Yogya, a mud volcano erupted that has become known as the Lapindo mud disaster (or Lusi mud eruption), named after the Lapindo Brantas company, which was drilling for oil. This mudflow has displaced about 50,000 people, has covered whole villages, and continues to erupt to this day. The company claims that the mud volcano erupted because of the earthquake in Yogya, and some scientists agree. Other scientists, however, place responsibility on the Lapindo company, and the Indonesian government still stands by its order for Lapindo to compensate displaced families to the tune of more than \$400 million US. Needless to say, this is a contested event, and in my own visit to the site I was led around the mudflow on a scooter by one of the persons who lost his home, village, and livelihood as a result of the mudflow. Losing one's home, village, and livelihood does not just mean physical displacement, but it also means a rupture or erosion in one's identity. We ought not to forget our own entanglement with specific places

and how much is at stake when one or more of those places is taken away. There was no question in my informant's mind that the Lapindo company was and is to blame and this is the thrust of the documentary that he and others have made about the mud disaster. Although I agree a great deal with his claims, and am quite aware of the ways in which companies try to cry "natural disaster" or "act of God" in order to get out of compensating victims, I do want to complexify this problem a bit by bringing to it an event-oriented analysis.

The Lapindo disaster is an ongoing event, triggered by multiple other events (or what we might call bio-historical flows), and has no single cause and no single solution. Thus, the Lapindo disaster is a perfect example of what I am referring to here as a wicked problem. If we want to analyze this problem we have to look at a whole host of factors that go beyond any of the immediate, efficient causes of the disaster; for instance, the history of human exceptionalism that suggests humans can treat the rest of the natural world as instruments toward human ends (Peterson 2001); the long geology of the Indonesian archipelago fraught with collisions of tectonic plates and subsequent volcanic eruptions and earthquakes; the fossil fuel-based global economy that leads multinational corporations to drill for oil all over the world; the emergence of the nation as a unit which is responsible for its peoples; the evolution of *Homo sapiens* as responsible creature; and the politics that often pit multinational corporations against what have become concerns of human rights. This is the type of wide-lens analysis that accompanies an event-based approach to wicked problems. Within this approach, various actors—the CEOs of the corporations, consumers at the gas pump, government officials, and most of all the displaced people such as those around the Lapindo mud disaster—are thrown into a scenario that they are forced to act within and respond to. The point of such an analysis is not to take us away from the embodied experience of the multiple actants involved or to place the blame onto events outside of anyone's control. Rather, the point is to help us to begin to construct, guide, and create situations where responses to such problems will be more helpful to the parties most affected.

In this particular case, we do not know how long the mudflow will continue nor do we know the exact combination of causes, but we do know that the displaced peoples (and other life forms), the Indonesian government, and the Lapindo company are all stakeholders who need to work toward a solution. Furthermore, anyone who uses fossil fuels is a stakeholder and has some amount of responsibility in coming up with a solution. It seems right that the Lapindo company should pay some reparations to displaced families past, present, and future, and that the Indonesian government should take some responsibility for helping to relocate these displaced peoples. Furthermore, it seems appropriate that governments begin to pay more attention to the specific ecologies and

geologies of a given place to find out what places are at more/less risk of such disasters. This analysis should, of course, take into account the changes in ecosystems and weather resulting from climate change. Some type of “risk tax” should be developed for dealing with the costs of peoples who live in high-risk places. Finally, those countries that have thrived most as a result of fossil fueled development should put much more into alternative energy technology development and distribution—knowing, of course, that these alternative technologies will likely present us with unforeseen problems.

In this type of analysis, there are varying levels of responsibility, but there are no complete victims and no complete villains. The Lapindo company would not have been there drilling were there not a global consumer demand for fossil fuels. The mud disaster would not have been possible without the unique geology of the Indonesian archipelago. I know of no one who lives in the Indonesian archipelago who is unaware of the risks from earthquakes, volcanoes, and tsunamis. The Indonesian government should be setting aside much more funding to deal with disasters associated with living in a seismically active archipelago. We should all think about events such as Lapindo every time we go to put gas in our tanks or flip on a light switch. This is the type of distributed agency and responsibility that is required of event- and object-oriented analyses. Although it is a lot messier than narrowing analyses to efficient causality and retributive justice based upon such causality, as we begin to apply these messy analyses to problems we might begin to understand that our problems and their solutions have always been messy. The sooner we realize our own embeddedness in planetary events, the sooner we will be able to begin reconstructing our world in ways that address these planetary problems.

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