

episteme

issue 1: natural disasters, man-made disasters

january 2020

edited by [Suzy Kim](#)

This inaugural issue of *episteme* ruptures the illusive boundary between so-called natural and man-made disasters that allows us easy absolution as victims rather than instigators of climate change. The recent [global climate strike](#) galvanized unprecedented numbers of children and young people ([four million](#) across the world by some estimates), dramatically illustrating the widespread awareness of the urgency of the problem, especially for future generations who will inherit a disproportionate burden of the problems they did not create. Media coverage of this global youth uprising also noted, however, the absence of similar protests in China, currently the world's largest greenhouse gas emitter. This intersection of climate and politics – conveniently duplicating the separated epistemic realms of the physical as opposed to the social sciences – therefore clarifies why we need to imagine new episteme, forms of engagement and praxes in our relations to one another and our planet. In that sense, the contributors of this issue of *episteme* approach their work as both practitioners and scholars to bridge theory and practice, as articulated in the vision statement for this new online forum.

[Naomi Klein](#)'s lead essay takes us to her [new book *On Fire*](#), released September 2019, connecting climate crisis to

capitalism, racism and systemic inequality in what she calls “climate barbarism.” Award-winning journalist and best-selling author, Klein was among the first to problematize the alleged boundary separating natural and man-made disasters. Her 2007 *The Shock Doctrine* coined the term “disaster capitalism” to help name cataclysmic disasters including “natural” ones that arise out of social and economic engineering that are aimed at advancing neoliberal privatization in the interest of corporate profits. In this episteme, it is obvious that the line dividing natural and man-made disasters often naturalizes what is in fact man-made, relegating some areas of the world to “sacrifice zones”.

“Sacrifice zone” is a particularly apt description for Delhi, billed as the most air-polluted city in the world by the World Health Organization. In his contribution, D. Asher Ghertner traces the history of colonial medicine that rendered Indian lungs as functionally different from a constructed European “norm,” transforming measures of pulmonary capacity into a racialized tool to render Indians expendable to polluted air. “Enclosing functional differences in lung capacity into the geo-racial categories of ‘America’, ‘East’, and ‘China’,” he argues, should be seen as foundational area studies work reading biology into a “natural”

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system of geographical hierarchies. The recent re-emergence of racialized arguments about the Indian lung’s immunity to air pollution re-inscribes this colonial logic, pointing to the prominent role of medicine as a terrain of critical environmental praxis in South Asia.

While the February 2019 special issue of *positions* hailed the theoretical “end of area” with the dislocation of the “West” and the “Rest” as defunct categories that no longer provide fodder for Western identity, the contributions in this issue show in practice how this “end” takes shape as the climate crisis defies our very sense of location and belonging, upon which the biopolitical project of governmentality relies. As [Pamela McElwee](#) warns, climate change-induced sea level rise will quite literally change geographies and conventional ways in which certain areas and continents have been defined as the populated regions of coastal Asia are wiped from the map. In the face of such dire consequences, she argues, nations are only too eager to locate themselves in the “victim slot” without critically evaluating both governmental and individual choices that have led to the current crisis, as she shows in the case of Vietnam. Indeed, the remnants of area are visible precisely in the stubborn hold of nationalism as shown by its resurgence and the accompanying rhetoric of national victimhood.

As my co-author and long-time humanitarian worker Ewa Eriksson Fortier and I show, North Korea too lies at this intersection of “victim” and “enabler”. North Korea is among the most vulnerable places to climate change, which the [UN Intergovernmental Panel on Climate Change \(IPCC\)](#) attributes to a combination of exposure, sensitivity, and capacity to adapt to climate hazards. North Korea’s particular liability is due to developmental failures, compounded by the extreme sanctions regime that has drastically cut its capacity to deal with its increasing exposure to natural disasters, defying yet again the artificial divide between natural and man-made disasters.

What each of the essays in this issue make clear is that disasters have differential impacts with the dispossessed suffering the most, as some places and peoples are deliberately forsaken, and there is nothing natural about that. It is no wonder that children (thought to be the most powerless) have taken to the streets.

Let Them Drown: The Violence of Othering in a Warming World¹

Naomi Klein

Edward Said was no tree hugger. Descended from traders, artisans, and professionals, the great anticolonial intellectual once described himself as “an extreme case of an urban Palestinian whose relationship to the land is basically metaphorical.” In *After the Last Sky*, his meditation on the photographs of Jean Mohr, he explored the most intimate aspects of Palestinian lives, from hospitality to sports to home décor. The tiniest detail (the placing of a picture frame, the defiant posture of a child) provoked a torrent of insight from Said. Yet, when he was confronted with images of Palestinian farmers (tending their flocks, working the fields), the specificity suddenly evaporated. Which crops were being cultivated? What was the state of the soil? The availability of water? Nothing was forthcoming. “I continue to perceive a population of poor, suffering, occasionally colorful peasants, unchanging and collective,” Said confessed. This perception was “mythic,” he acknowledged—yet it remained.

If farming was another world for Said, those who devoted their lives to matters like air and water pollution appear to have inhabited another planet. Speaking to his colleague Rob Nixon, then at Columbia University, he once described environmentalism as “the indulgence of spoiled tree huggers who lack a proper cause.” But the environmental challenges of the Middle East are impossible

to ignore for anyone immersed, as Said was, in its geopolitics. This is a region intensely vulnerable to heat and water stress, to sea-level rise and to desertification. A recent paper in *Nature Climate Change* predicts that unless we radically lower emissions and lower them fast, large parts of the Middle East will likely “experience temperature levels that are intolerable to humans” by the end of this century. And that’s about as blunt as climate scientists get. Yet environmental issues in the region still tend to be treated as afterthoughts, or luxury causes. The reason is not ignorance, or indifference. It’s just bandwidth. Climate change is a grave threat, but the most frightening impacts are a few years away. In the here and now, there are always far more pressing threats to contend with: military occupation, air assault, systemic discrimination, embargo. Nothing can compete with that; nor should it attempt to try.

There are other reasons that environmentalism might have looked like a bourgeois playground to Said. The Israeli state has long coated its nation-building project in a green veneer—it was a key part of the Zionist “back to the land” pioneer ethos. And in this context, trees, specifically, have been among the most potent weapons of land grabbing and occupation. It’s not only the countless olive and pistachio trees that have been uprooted to make way for settlements and Israeli-only roads. It’s also the sprawling pine and eucalyptus forests that have been planted over those orchards, and over Palestinian villages. The most

¹ Excerpt from “Let Them Drown: The Violence of Othering in a Warming World,” 2016 Edward W. Said London Lecture delivered May 4, 2016, published in the *London Review of Books*, June 2, 2016 and included in *On Fire: The Burning Case for a Green New Deal* (Simon & Schuster, 2019).

notorious actor on this has been the Jewish National Fund, which, under its slogan, “Turning the Desert Green,” boasts of having planted 250 million trees in Israel since 1901, many of them nonnative to the region. It has also directly funded key infrastructure for the Israeli military, including in the Negev Desert. In publicity materials, the JNF bills itself as just another green NGO, concerned with forest and water management, parks and recreation. It also happens to be the largest private landowner in the state of Israel, and despite a number of complicated legal challenges, it still refuses to lease or sell land to non-Jews.

I grew up in a Jewish community where every occasion (births and deaths, Mother’s Day, bar mitzvahs) was marked with the proud purchase of a JNF tree in the name of the honored person. It wasn’t until adulthood that I began to understand that those feel-good faraway conifers, certificates for which papered the walls of my Montreal elementary school, were not benign—not just something to plant and later hug. In fact, these trees are among the most glaring symbols of Israel’s system of official discrimination, the one that must be dismantled if peaceful coexistence is to become possible.

The JNF is an extreme and recent example of what some call “green colonialism.” But the phenomenon is hardly new; nor is it unique to Israel. There is a long and painful history in the Americas of beautiful pieces of wilderness being turned into conservation parks, and then that designation being used to prevent Indigenous people from accessing their ancestral territories to hunt and fish or simply to live. It has happened again and again. A contemporary version of this phenomenon is the carbon offset. Indigenous people from Brazil to Uganda are finding

that some of the most aggressive land grabbing is being done by conservation organizations. A forest is suddenly rebranded a carbon offset and is put off-limits to its traditional inhabitants. As a result, the carbon offset market has created a whole new class of green human rights abuses, with farmers and Indigenous people being physically attacked by park rangers or private security when they try to access these lands. Said’s comment about tree huggers should be seen in this context. [...]

Perhaps this puts the cynicism about the green movement in context. People do tend to be put off when their lives are treated with less respect than flowers and reptiles. And yet there is so much of Said’s intellectual legacy that both illuminates and clarifies the underlying causes of the global ecological crisis, so much that points to ways we might respond that are far more inclusive than current campaign models: ways that don’t ask suffering people to shelve their concerns about war, poverty, and systemic racism and first “save the world,” but that instead demonstrate how all these crises are interconnected, and how the solutions could be, too. In short, Said may have had no time for tree huggers, but tree huggers must urgently make time for Said, and for a great many other anti-imperialist, postcolonial thinkers, because without that knowledge, there is no way to understand how we ended up in this dangerous place, or to grasp the transformations required to get us somewhere safer. So, what follows are some thoughts, by no means complete, about what we can learn from reading Said in a warming world.

He was and remains among our most achingly eloquent theorists of exile and homesickness, but Said’s homesickness, he always made clear, was for a home that had

been so radically altered that it no longer really existed. His position was complex: he fiercely defended the right of Palestinians to return, but never claimed that home was fixed. What mattered was the principle of respect for all human rights equally and the need for restorative justice to inform our actions and policies. This perspective is deeply relevant in our time of eroding coastlines, of nations disappearing beneath rising seas, of the coral reefs that sustain entire cultures being bleached white, of a balmy Arctic. This is because the state of longing for a radically altered homeland, a home that may not even exist any longer, is something that is being rapidly, and tragically, globalized.

In March 2016, two major peer-reviewed studies warned that sea level rise could happen significantly faster than previously believed. One of the authors of the first study was James Hansen, perhaps the most respected climate scientist in the world. He warned that, on our current emissions trajectory, we face the “loss of all coastal cities, most of the world’s large cities and all their history”—and not in thousands of years from now but as soon as this century. In other words, if we don’t demand radical change, we are headed for a whole world of people searching for a home that no longer exists.

Said helps us imagine what that might look like as well. He often invoked the Arabic word *sumud* (“to stay put, to hold on”), that steadfast refusal to leave one’s land despite the most desperate eviction attempts and even when surrounded by continuous danger. It’s a word most associated with places like Hebron and Gaza, but it could be applied equally today to thousands of residents of coastal Louisiana who have raised their homes up on stilts so that they

don’t have to evacuate, or to Pacific Islanders whose slogan is “We are not drowning. We are fighting.” In low-lying nations like the Marshall Islands and Fiji and Tuvalu, they know that so much sea level rise is already locked in from polar ice melt that their countries likely have no future. But they refuse to concern themselves with only the logistics of relocation, and wouldn’t relocate even if there were safer countries willing to open their borders—a very big if, given that climate refugees aren’t currently recognized under international law. Instead, they are actively resisting: blockading Australian coal ships with traditional outrigger canoes, disrupting international climate negotiations with their inconvenient presence, demanding far more aggressive climate action. If there is anything worth celebrating in the Paris Climate Agreement—and sadly, there isn’t enough—it has come about because of this kind of principled action: climate *sumud*.

But this only scratches the surface of what we can learn from reading Said in a warming world. He was, of course, a giant in the study of “othering,” what is described in his 1978 book *Orientalism* as “disregarding, essentializing, denuding the humanity of another culture, people or geographical region.” And once the other has been firmly established, the ground is softened for any transgression: violent expulsion, land theft, occupation, invasion. Because the whole point of othering is that the other doesn’t have the same rights, the same humanity, as those making the distinction. What does this have to do with climate change? Perhaps everything.

We have dangerously warmed our world already, and our governments still refuse to take the actions necessary to halt the trend. There was a time when many had the right

to claim ignorance. But for the past three decades, since the Intergovernmental Panel on Climate Change was created and climate negotiations began, this refusal to lower emissions has been accompanied with full awareness of the dangers. And this kind of recklessness would have been functionally impossible without institutional racism, even if only latent. It would have been impossible without Orientalism, without all the potent tools on offer that allow the powerful to discount the lives of the less powerful. These tools—of ranking the relative value of humans—are what allow the writing off of entire nations and ancient cultures. And they are what allowed for the digging up of all that carbon to begin with.

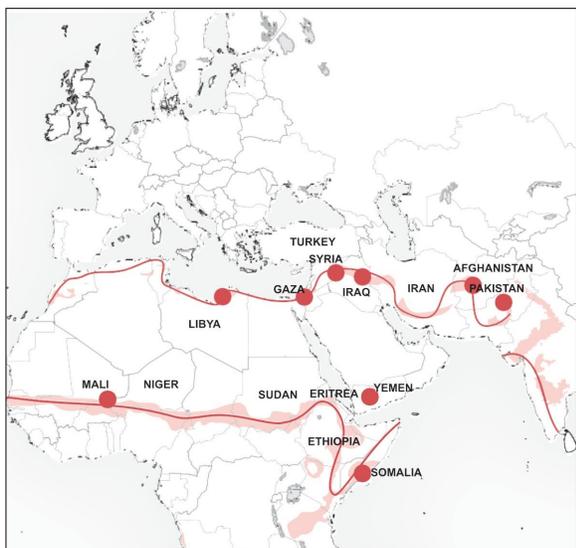


Figure 1: From *On Fire* (p. 162), based on *The Conflict Shoreline* by the Israeli architect Eyal Weizman. The red line on the map shows the aridity line – areas where there is on average 7.8 inches of rainfall a year, considered the minimum for growing cereal crops on a large scale without irrigation. The connection between water and heat stress and conflict is a recurring, intensifying pattern that spans the aridity line: all along it you see places marked by drought, water scarcity, scorching temperatures, and military conflict with the red dots on the map representing some of the areas where Western drone strikes have been concentrated.

Fossil fuels aren't the sole driver of climate change—there is also industrial agriculture and deforestation—but they are the biggest. And the thing about fossil fuels is that they are so inherently dirty and toxic that they require sacrificial people and places: people whose lungs and bodies can be sacrificed to work in the coal mines, people whose lands and water can be sacrificed to open-pit mining and oil spills. As recently as the 1970s, scientists advising the US government openly referred to certain parts of the country being designated “national sacrifice areas.” Think of the mountains of Appalachia, blasted off for coal mining because so-called mountaintop removal coal mining is cheaper than digging holes underground. There must be theories of othering to justify sacrificing an entire geography—theories about the people who lived there being so poor and backward that their lives and culture don't deserve protection. After all, if you're a “hillbilly,” who cares about your hills? [...]

The point is this: our fossil fuel-powered economy requires sacrifice zones. It always has. And you can't have a system built on sacrificial places and sacrificial people unless intellectual theories that justify their sacrifice exist and persist: from the Doctrine of Christian Discovery to Manifest Destiny to *terra nullius* to Orientalism, from backward hillbillies to backward Indians. We often hear climate change blamed on “human nature,” on the inherent greed and shortsightedness of our species. Or we are told we have altered the earth so much and on such a planetary scale that we are now living in the Anthropocene, the age of man. These ways of explaining our current circumstances have a very specific, if unspoken meaning: that humans are a single type, that human nature can be essentialized

to the traits that created this crisis. In this way, the systems that certain humans created, and other humans powerfully resisted, are completely let off the hook. Capitalism, colonialism, patriarchy—those sorts of systems.

Diagnoses like this also erase the very existence of human systems that organized life differently, systems that insist that humans must think seven generations in the future; must be not only good citizens but also good ancestors; must take no more than they need and give back to the land in order to protect and augment the cycles of regeneration. These systems existed and persist, against all odds, but they are erased every time we say that climate disruption is a crisis of “human nature” and that we are living in the “age of man.” [...]

This is an emergency, a present emergency, not a future one. [...] The most important lesson to take from all this is that there is no way to confront the climate crisis as a technocratic problem, in isolation. It must be seen in the context of austerity and privatization, of colonialism and militarism, and of the various systems of othering needed to sustain them all. The connections and intersections between them are glaring, and yet so often, resistance to them is highly compartmentalized. The anti-austerity people rarely talk about climate change; the climate change people rarely talk about war or occupation. Too many of us fail to make the connection between the guns that take black lives on the streets of US cities and in police custody and the much larger forces that annihilate so many black lives on arid land and in precarious boats around the world.

Overcoming these disconnections, strengthening the threads tying together our

various issues and movements, is, I would argue, the most pressing task of anyone concerned with social and economic justice. It is the only way to build a counterpower sufficiently robust to win against the forces protecting the highly profitable but increasingly untenable status quo. Climate change acts as an accelerant to many of our social ills (inequality, wars, racism, sexual violence), but it can also be an accelerant for the opposite, for the forces working for economic and social justice and against militarism. Indeed, the climate crisis, by presenting our species with an existential threat and putting us on a firm and unyielding science-based deadline, might just be the catalyst we need to knit together a great many powerful movements bound together by a belief in the inherent worth and value of all people and united by a rejection of the sacrifice zone mentality, whether it applies to peoples or to places.

India, Race, Breath

D. Asher Ghertner

In November 2018, Sir Ganga Ram Hospital (SGRH), one of Delhi's premier private hospitals, installed a giant replica of human lungs on a full-size billboard outside its entrance. The installation was designed to change color over time based on the quantity of air pollution the “inhalators” pulled through the porous, HEPA-filter-wrapped white exterior. An LED display of the real-time air quality index (AQI) beside the “lungs” flashed levels in the “hazardous” range (≥ 400).



The lung installation outside Sir Ganga Ram Hospital in Rajender Nagar, Delhi, declares “EVERY BREATH MATTERS” and “*Swachh hawa hamara adhikar*” (Clean air is our right).

This was north India's third consecutive year of what activists term *airpocalypse*, an extreme air pollution event in the cooling late-autumn months when citywide mortality numbers rise alongside the AQI. The Indian Medical Association had declared a state of medical emergency in Delhi days before the lung installation appeared. Respiratory departments across the city saw patients line

up by the hundreds, suffering from asthma attacks and irrepressible coughing.

While the clinical rooms inside SGRH provide high-end imaging analysis of individual pulmonary systems, the giant lung display outside offered a different type of imaging test. Rather than diagnosing the effects of a season or lifetime of breathing dirty air, the installation was a singular pulmonary apparatus standing in for the aggregate lung of the nation. The accumulation of particulate matter was meant to signal the accumulation of collective harm. Visualizing Indian pulmonary vulnerability, these “lungs” turned black in a mere five days, proving an effective, if obvious, object lesson in respiratory ailment.

An SGRH doctor explained the installation's aim: “to prove the hazardous impact of Delhi's air pollution.” If this were all that was at stake, the event would have passed unnoticed, one among many public awareness exercises admonishing residents to reduce strenuous activity on high-pollution days or stop bursting firecrackers during Diwali celebrations. However, the lung display—circulating widely in the media and popular conversation—gathered greater semiotic power through the implicit biopolitical claim it proffered: Indian lungs are the same as other human lungs, vulnerable to atmospheric pollution. As an anthropo-metrical device depicting Indian vulnerability to death-dealing airs, it

announced: “we *too* belong to the Anthropos of the Anthropocene.” Expanding private car use, burning coal to develop industry, and throwing thousands of tons of harmful particulate matter into the lower atmosphere might be the government’s path to establishing India’s global standing—what is often glossed as **India rising**. The lung display flashed a warning that this path to one type of standing comes at the expense of a different one.

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In January 2014, the World Health Organization ranked Delhi as the most air-polluted city in the world. Based on the WHO’s **Global Burden of Disease** project, which uses globally benchmarked epidemiological models to explain the relationship between pollution inhalation and lung disease, scientists in India and abroad followed suit with widely reported estimates of mass atmospheric death: 1.24 million premature air pollution-induced deaths occurred across India in 2017 alone, found a major study published in *The Lancet*; Delhiites on average lose more than ten years of life due to bad air, pronounced the University of Chicago’s **Air Quality Life Index**.

These findings were mobilized by environmental activists through a flurry of anti-pollution legal petitions in the Supreme Court and National Green Tribunal, prompting the courts’ rollout of a **ban** on pre-Diwali firework sales, new regulations on construction dust, and a **plan** to remove old cars and trucks from the city. Key ministries in the Government of India responded differently, opposing such strict emissions controls and rejecting these death statistics as just another iteration of imperial science throwing shade on the (post-)colony. The Ministry of Environment, Forest, and

Climate Change (MoEFCC), for example, declared that “these numbers are not validated for Indian conditions,” insisting that “international studies should not be cited as reference.” The move to deflect the imperial stigmata of global health—evident in the global “ranking” of all but two of the world’s twenty **most-polluted cities** in South Asia—however, rested on its own presumption of “natural” civilizational hierarchy.

The environment minister, for example, **stated** in parliament that “medical history, *immunity*, and heredity of the individuals” falling ill must be considered when assessing the morbidity effects of pollution. The Ministry of Heavy Industries, in oral testimony challenging the National Green Tribunal’s **ban** on diesel vehicles more than ten-years-old, suggested that “fine dust” cannot be presumed to harm the Indian lung in the same way as it harms the European lung because of its natural occurrence on the subcontinent. Reintroducing the **colonial specter** of tropical difference and the inherently polluted Indo-Gangetic plains, the member of parliament representing the New Delhi constituency disputed the need for action to curb air pollution, **remarking** that “Delhi smog is a natural phenomenon, happening due to Delhi’s geography, and there are places with worse air than Delhi.” The MoEFCC secretary in January 2019 went so far as to **claim** that “we have no data linking air pollution with death” in India.

Governmental claims of Indian immunity to atmospheric pollution draw from a longer colonial legacy of racialized medicine. Consider, for example, Colonel Kenneth MacLeod’s **remarks** at the opening of the Section of Tropical Disease at the British Medical Association in 1900. Describing typhoid and “dust colic”—a disease caused

by “the swallowing with water and food of irritating dust particles of grit blow by the dust storms”—MacLeod argued that “the native immunity in India, though not absolute, is undoubted.” F.G. Clemow’s 1903 *Geography of Disease* explained the neo-Lamarckian premises underpinning this theory of racial immunity, positing that certain germs or poisons might become “not merely an individual immunity, but a racial immunity, transmissible from generation to generation, and truly permanent so long as man shall continue to live in an atmosphere of these particular organisms.” Nineteenth- and early twentieth-century understandings of Indian immunity to dust and atmospheric pollution intersected with global interest in the comparative study of racial “traits.” The lung, it turns out, provided a perfect organ for the production of a system of hierarchical comparison, with pulmonary science dedicated to measuring and classifying lung size based on race.

The hypothesis positing non-white pulmonary difference vis-à-vis white lungs was espoused far earlier in a different colonial setting. Thomas Jefferson’s *Notes on the State of Virginia*, written in 1785, first introduced the language of “difference of structure in the pulmonary apparatus.” In the context of the Southern plantation economy of which he was a part, Jefferson argued that black people were especially suited to agricultural labor due to their greater tolerance of heat compared with Europeans. Lung size, it was suggested, was inversely related to the capacity of the body to dissipate heat. Small lungs were suited to tropical conditions. As Lundy Braun documents in her *important book* on racialized lung science, nearly a century passed before the plantation physician Samuel Cartwright tested Jefferson’s interpretive framework. Building on the

newly formalized techniques of spirometry used for quantifying what came to be called “vital capacity”—measured typically as the maximum volume of air one can exhale in a single breath—he found that “the deficiency in the negro” was “20 per cent.” Defining difference as “deficiency,” Cartwright, *Braun argues*, “established race as a key organizing principle of lung function measurements.”

While serving as a visiting professor in 1921 at Peking Union Medical College, established by the Rockefeller Foundation, the Harvard physician-scientist Francis Peabody delivered a lecture on the “Clinical Importance of the Vital Capacity of the Lungs” to a mostly North American audience, among whom was US physician John Foster, then based at the Hunan-Yale Hospital. Two years later, Foster published the findings from the *first systematic study* of vital capacity among “the Eastern Races” with his Chinese collaborator P. L. Hsieh, using Peabody’s “normal standards” for “American” lungs as the benchmark. Globally comparative race-based studies of lung function would soon follow, introducing into pulmonary medicine what *May Wilson and Dayton Edwards* in 1922 called “a possible racial factor.”



Dedication ceremony at Peking Union Medical College, September 1921 (without names of the

photographed). Source: Rockefeller Foundation. China Medical Board, *100 Years: The Rockefeller Foundation*.

The image above, depicting the 1921 dedication ceremony at Peking Union Medical College, shows this US–East Asia circuitry of racializing lung science. Francis Peabody appears to be on the far left of the photograph, beside someone with the likeness of John Foster. This group of mostly men might be understood to have been carrying out foundational “area studies” work, enclosing functional differences in lung capacity into the geo-racial categories of “America,” “East,” and “China,” with individual scientists helping produce “normal” vital capacity numbers for each of these respective areas. Foster and Hsieh’s 1923 paper cites Peabody’s methods in its first sentence, and the paper offers a single-line conclusion: “The Chinese show much lower vital capacity ratios than Westerners.” Reifying anatomical difference as a meaningful foundation of racial formation and vitality, race-comparative spirometric measures of vital capacity would become foundational to pulmonary medicine: you cannot breathe into a spirometer today without a clinician already marking your race. Vital capacity, as an anthropo-metric, is necessarily raced.

The first study bringing “India” into the citationary structure of comparative lung studies, published in *The Indian Medical Gazette* in 1929 by S. L. Bhatia, Dean of Grant Medical College, Bombay, cited Wilson and Edwards as inspiration. Testing the “existence of a possible racial factor” (Wilson and Edwards’s exact language), Bhatia replicated Foster and Hsieh’s methods on one hundred Indian subjects and concluded that “the vital capacity of the lungs of this group of 100 Indians is much

smaller than normal standards given for Western people”: between ten and thirty percent smaller, he estimated. In the only table presented in his paper, Bhatia reproduced Foster and Hsieh’s standards for Chinese men, as well as their published numbers (drawn from Peabody) for “American” lung function as the benchmark against which Indian deficiency could be gauged. This marked a moment of global diffusion of spirometric norms in which whiteness became an assumed standard. Race-based anatomical difference, in turn, mapped onto immunological difference, with vital capacity operating as an anthropo-metric to demonstrate functional difference across race/area. Small lungs confirmed Indians’ racial adaptation to tropical air. Atmospheric difference produced areas of (and *area* as) biological difference.

While this “area studies” work was not an explicitly stated civilizational project—given the clinical need to have lung-function baselines for determining when a subject was suffering from reduced vital capacity (= ill) and not simply born into an ethnic group “endowed” with smaller lungs (= not-ill)—it did put into play an economy of commensurability allowing biological difference to be compared and judged. This is evident in the growth of a global industry of comparative spirometric studies into the mid-twentieth century that pursued racially differentiated benchmarks for vital capacity and that focused narrowly on anthropometric and genetic underpinnings, with virtually no mention of environmental or dietary factors that might contribute to variation in vital capacity. J. E. Cotes’s popular 1965 handbook *Lung Function* is indicative of this framing:

In general the vital capacities of people

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of European descent appear to be larger than those of other ethnic groups; of these, the inhabitants of the Indian subcontinent and the people of Polynesian stock appear to have the smallest volumes with the Negroid and Mongoloid peoples intermediate (356).

These findings were reproduced in updated studies in the 1970s and have held into the present. The most recent [sixth edition](#) of *Lung Function*, published in 2009, uses less racialized language, but its findings have barely changed, stating that across India “the levels of lung function... are systematically lower than in Caucasians (16-28% lower).” The reference paper most cited in media and judicial discussions of Indian vital capacity today, published in *The Lancet* in 2013, observes that “compared with North America or Europe, FEV<sub>1</sub> [forced expiratory volume in one second; a standard measure of vital capacity] adjusted for height, age, and sex was 31.3% lower in south Asia.”

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In the face of the facticity of Indian pulmonary difference, the problem of *area* posed so astutely in the February 2019 issue of [positions](#) by Gavin Walker and Naoki Sakai as *the enclosure of difference into interiority* takes on an elemental,

biophysical urgency. The colonial medical thought that affirmed the mutually constituted uniqueness of European vulnerability, on one hand, and Indian resistance to (sub-)tropical air, on the other, had the effect of pushing native populations away from a livable life. The state biomedical reasoning that obstructs pollution abatement action today must be seen as enforcing this same colonial model of necropolitics: *making die* through atmospheric abandonment. By opposing car restrictions and related emissions controls in the name of a presumed native immunity to pollution, the Indian state is not subjecting Indian soldiers to unshielded heat or “miasmas,” as the colonial state did. It is rather submitting the entire population to [slow death by breath](#). The SGRH lung installation’s surprising semiotic resonance—who would normally care about a hospital’s anatomical display?—thus marks a counter-visuality opposing the reduction of popular suffering to meaninglessness. It operated as a *critical area studies* apparatus of sorts, affirming Indian biological parity with the universal subject of global health and challenging the extension of racializing pulmonary medicine into the necropolitical project of the late-industrial state.

Vietnam Fighting Sea Level Rise: Victim or Enabler?

Pamela McElwee

In the 2014 film *Nước 2030*, rising sea levels have completely submerged Hồ Chí Minh City, and the region's residents must now survive on small rickety boats or labor on floating farms owned by foreign multinationals. Billed as [the first sci-fi film from Vietnam](#), Southeast Asia's future is a watery dystopia. Fights break out over who, if anyone at all, has rights to the resources of the aqueous environment, and if ancestral lands lying underneath the sea still bestow access rights. Shady corporations invest in desalinization technologies and experiment with genetically modified plants that will tolerate the saltwater, while former farmers cope with their future on water, isolated from their previous communities and unable to perform even basic cultural rites like traditional burials.



Still from *Nước 2030*

Although wildly speculative, *Nước 2030* draws attention to the fact that [coastal areas of Asia are extremely vulnerable](#) to climate change-induced sea level rise (SLR). While smaller, island states have received most of the world's notice, in fact littoral Asia is home to much larger populations facing rising waters. The World Bank has designated Vietnam as one of the top 5

countries in the world threatened by global SLR, with [“potentially catastrophic” consequences](#). The Mekong Delta, known as the rice basket of the country, faces the possibility of a 40% loss in land area if sea level rises one meter, currently an entirely plausible forecast for the end of this century. In just thirty years in Hồ Chí Minh City (HCMC, the former Saigon), the country's largest and richest city, 60% of all citizens will face more extreme flooding as a result of SLR. To combat these future nightmare scenarios, Vietnam has become a prominent member of the [Climate Vulnerable Forum](#) of 40+ at-risk countries, and has [requested billions of dollars](#) of international aid for adaptation, much of it directed at holding back the rising seas.

Yet Vietnam's vulnerability is not just a result of anthropogenic climate change caused by greenhouse gas emissions generated elsewhere. Too often, countries argue for placement in a [‘victim slot’](#) without a harder look at their own culpability. In Vietnam's case, SLR is a growing problem, but so too is unregulated coastal zone and urban development. [Rapid economic growth in the past three decades has degraded ecosystems, reduced resilience, and concentrated assets in coastal areas and floodplains](#), placing them at risk. Most of Vietnam's largest cities (Hanoi, HCMC, Đà Nẵng, Cần Thơ and Huế) are either directly on or less than 100 km from a coastal zone. A further important concern is the country's chaotic use of groundwater, with excessive rates of abstraction due to unregulated private borewells, [leading to](#)

serious consequences for land subsidence. While some land sinking (subsidence) can occur naturally, rates increase when groundwater aquifers are depleted and the layers on top undergo compaction, leading to depressions at the land surface. These ill-considered governmental and individual decisions to exploit water tables and build up coastlines now clash with the realities of global climate change’s impact. The problem is, Vietnam is not yet asking how its development trajectories and environmental governance systems must be radically reconfigured in a world that will likely be 2 or more degrees warmer.

Given its 3400-km long coastline, physical geography strongly exposes Vietnam to SLR. River deltas in North and South give Vietnam the appearance of two baskets on a carrying pole; land elevation in the Mekong Delta averages only 0.8m above sea level. Observed sea levels, measured both by tidal gauges and satellites, have risen along the coastline of Vietnam in the 20th century by around twenty cm, and continue to rise 3mm per year.

Higher rates of SLR mean more coastal erosion and inundation, with reductions of per capita land availability and physical displacement. It also means increased risk from storm surges accompanying hurricanes; more frequent coastal flooding; infrastructure losses, such as roads and bridges that are reclaimed by the sea; and increasing salinization of freshwater sources further inland. Excess salinity kills rice and shrimp fry, two of Vietnam’s prime agricultural exports; in the Mekong Delta, hundreds of thousands of hectares of agricultural fields will be rendered useless when SLR reaches even 30 cm. SLR of 1 meter will destroy 19,000km of roads, costing over \$2 billion US to replace.

In some ways, the future has already arrived. Salinity intrusion has spread 30-50 km inland in the Red River Delta and 60-70 km in the Mekong Delta, and has already polluted thousands ha of land. In the last few years, scores of households in the Mekong Delta were affected by severe coastal erosion, losing land and houses to ocean tides at a rate of nearly 2.3 km² a year. An additional driver of this process is loss of sediment deposition due to upstream dams (attributed to other countries’ hydropower development) and mining of riverbank sand and loss of protective mangroves downstream, for which Vietnam has only itself to blame. Already there is evidence of climate-related outmigration from the rural Delta to HCMC, but even there climate refugees cannot escape the future. The majority of the city is at risk of inundation from floods, which are exacerbated by SLR.

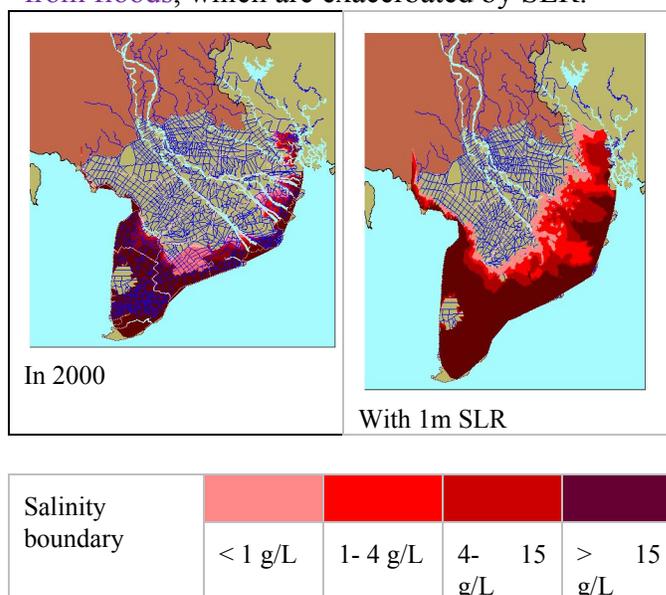
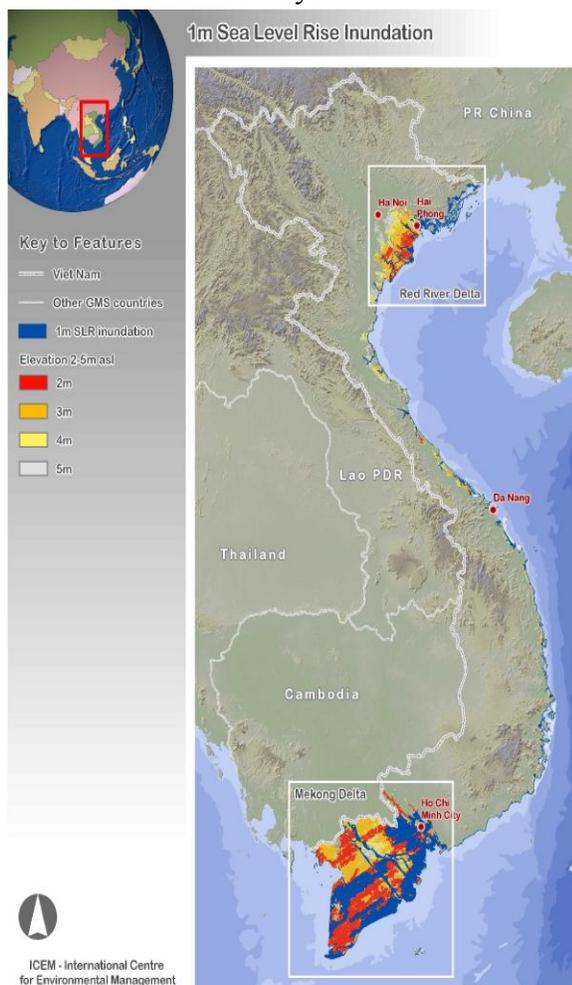


Figure 1. Salinity boundary in Mekong River delta in 2000 and projected for 1m SLR. Source, World Bank 2010

Most models for Vietnam predict SLR of 35 cm by 2050 under medium emissions scenarios, and a high-end estimate of 1m or

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more by century’s end or more cannot be ruled out. A 1m rise would partially inundate 7% of Vietnam’s land area and 11% of the total population, including 40% of the Mekong River Delta. High end scenarios show Vietnam will incur costs of **\$65 billion USD per year from SLR alone**. Should sea level rise as high as 5m, although unlikely to happen for several centuries, more than a third of the country’s population would be in harm’s way.



Source: ICEM, 2008

However, the rates for SLR, as alarming as they are, are actually worse than they seem when they are added to subsidence (land sinking) rates. Excess groundwater extraction and overdevelopment is causing

the Mekong Delta to sink **1.6 cm per year**, a rate five times faster than SLR. The Mekong Delta is on track to expect on average 0.88m (and potentially up to 1.4 m) of land subsidence by 2050. The process cannot be reversed, as most of the groundwater extraction taps aquifer layers at a 50- to 120-m depth, which do not get seasonally recharged. Subsidence is worsened in built up areas, compacting soils underneath; for comparison, **natural and unaltered ecosystems are not experiencing high rates of subsidence**. Sand mining and loss of sedimentation due to upstream dams exacerbate the problem as well. All of this has an effect on water movement throughout the region: as one report notes, even “**modest deformation due to human activities can change flooding conditions over large areas.**” One dire projection is that the combined impacts of anthropogenic climate change with overdevelopment of the Mekong run the risk of **wiping the delta completely off the map** by 2100.

Most of Vietnam’s subsidence problem **has happened in just the last 25 years**. Overall, it is driven by lack of access and affordability of treated surface water supplies and piped water systems, leaving households to hire wildcat drillers to drive private wells deep into the water table. Just as in the West, where driving cars contributes to greenhouse case emissions, the aggregate actions of millions of Vietnamese citizens drilling wells has made the problem worse.

The twin threats of SLR and subsidence pose a particularly existential threat to HCMC, Vietnam’s largest urban area, with nearly 9 million residents as of 2019. **Rapid population growth has contributed to unplanned development on the peri-urban fringe and haphazard conversion of formerly agricultural lands; a number of service provision problems, particularly related to drinking water and sewer/drainage access;**

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and substandard housing. While the city is not directly on the coast, tidal surges on the Saigon River push water up into the city, increasing already dangerous flood-tide levels that quickly overtop the existing dike system. About 60% of the city is less than 1.5 m above sea level, and in the past 50 years, 20cm of SLR has been recorded on the southern coast.

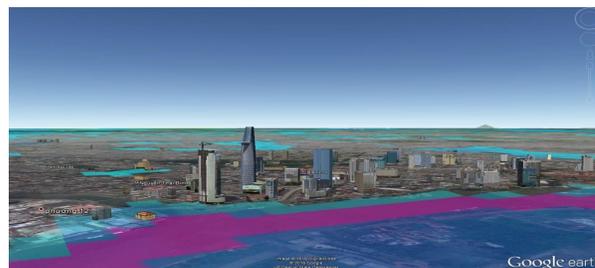


Street Flooding in Ho Chi Minh City.

Photo by *SqueakyMarmot*, Creative Commons

A SLR of just 50 cm would lead to regular flooding of 300 km² of the city, with up to 71% of land area and 62% of the population being regularly exposed. Low-lying wards, many of which are slum areas occupied by informal settlements and migrants, are at particular risk of flooding. The city also continues to add middle-class and upper-class housing by expanding to new urban areas (such as Saigon South and Thủ Thiêm), which were unwisely built on filled-in wetlands, and which also have higher flood risk. With a future 1m SLR, 6% of the land area, 15% of infrastructure, and many of the industrial zones and manufacturing facilities that ring around the city would be completely inundated. SLR will also increase salinity of the shallow coastal aquifers, making water supplies, for which households have exacerbated the subsistence problems, essentially undrinkable. These challenges are why

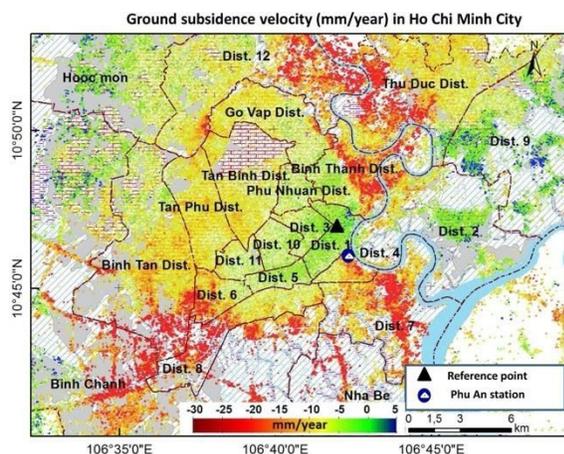
HCMC is listed among the 10 port cities in the world most at risk from climate change.



Flood maps overlaid with the built environment in Ho Chi Minh City, for a 25-year return period under high SLR. Source: Bangalore et al. 2017

As with the Mekong Delta, in HCMC, land subsidence amplifies the flood risks and damages roads and buildings. Many of the city's districts are sinking at a speed of 15-45 mm/year. Piped water is available in nearly all districts, but is often weak and more expensive, so many households and buildings use illegal groundwater pumps, with over 200,000 known boreholes. Whereas in the 1950s groundwater abstraction was approximately 80,000 m³/day, it was 583,000 m³/day in 2008: the safe level of abstraction is less than 300,000 m³/day. Although the city government passed a Water Act in 2007 to better regulate groundwater use, it has been ineffectively enforced. Ultimately, the choices of where to build up, and how to supply water, are likely to be significantly more important than SLR in terms of long-term risks to HCMC.

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Source: Dinh et al. 2015

The national government has developed a [National Climate Strategy](#), which focuses on three priority areas action: responding pro-actively to disasters and improving climate monitoring; ensuring social security; and responding to sea level rise and urban inundation. Many of the priority measures for SLR tend to be ‘hard’ adaptation: [constructing urban drainage infrastructure and rural canals and sluices](#); [major building projects like deeper ports](#); and [strengthening and expanding sea and river dikes](#). Even a [hugely expensive tidal barrier](#) at the mouth of Saigon river (like the Thames Barrier in London) has been suggested.

Unfortunately, large-scale adaptation measures are the least likely to be pro-poor; many times, the poorest households are those who are displaced by newly built infrastructure, or are excluded from access to the benefits of development. Further, hard adaptation measures often involve serious trade-offs. [Sea dikes](#) can result in simply [shifting risk into other areas](#). For HCMC, a [ring dike](#) would protect the inner city but increase risk in more rural districts. Simpler measure like [elevating buildings in areas at risk and dryproofing them](#) would benefit

more people. In the rural Delta, [low tech actions like collecting rainwater or adopting alternative wetting and drying methods for rice growing](#) can help as much or more than [dikes](#).

The meta-challenge for Vietnam is that climate change will contradict development trajectories set by state authorities; right now, current economic growth always trumps future climate risk. Decisions made every day regarding how Vietnam should develop have put more people, assets, and resources in harm’s way. Managing this risk requires an understanding that tinkering around the edges with adaptation projects will not be enough, and that hard decisions about strategic priorities must be made. Not taking action now to limit development within areas known to be especially vulnerable to climate impacts, or to regulate groundwater abstraction, may mean that the country faces enormous costs of resettlement down the road. Coastal withdrawal and retreat, abandoning a site and moving elsewhere, is a very real possibility, even for large cities. The recent decision to [move the capital of Indonesia from Jakarta](#) due to subsidence, pollution and overcrowding provide a foreshadowing of what may face HCMC in the future under SLR.

While HCMC will not be an underwater graveyard anytime soon, the vision of the film *Nước 2030* shows the madness of ignoring the very real risks that climate change and unsustainable development pose. The filmmaker has said that he made a [documentary of the future](#). At the current trajectory that Vietnam is on, he is largely right.

North Korea Caught Between Developmentalism and Humanitarianism

Ewa Eriksson Fortier & Suzy Kim

In November 2017, news flashed around the world about the defection of a North Korean soldier stationed in the Joint Security Area at the Demilitarized Zone (DMZ) separating the two Koreas. Shot during the crossing, what made headlines was rather the parasitic worms found in his intestines during surgery. Humanitarian health workers know this is a common condition in the developing world, which can be prevented with access to safe water and sanitation, and treated with drugs or surgery if available, as in post-war Vietnam.

This case underscores the extent to which environmental crises are fraught with politics, both in the way domestic policies are framed within a country, and for North Korea in how its environment is understood and addressed by international actors from the United Nations to humanitarian organizations. In disregard of doctor-patient confidentiality, politicians and pundits used the public release of the details of the soldier's health status to highlight difference in conditions between the two Koreas.

However, what is revealed in the tragic story is North Korea's environmental crises. These include (1) the direct impact of the Korean War on its environment; (2) indirect impact of ongoing conflict on its capacity to handle these environmental problems; (3) and finally, the severe constraints on humanitarian organizations to address environmental factors of the health crises in North Korea (officially known as the Democratic People's Republic of Korea, DPRK).

Symbolized by the soldier's post along the DMZ, the first, direct result and continuing legacy of the Korean War are its remnants. A sustained bombing campaign in the three years between 1950 and 1953 levelled the country, leaving obvious environmental hazards but also many unexploded ordnance (UXO) embedded in the ground. North Korean authorities report that there have been over 16,215 victims of explosive remnants since the end of the war. Farmers are frequent victims of these exploding devices, particularly as the mines move during natural disasters such as floods and landslides.



Figure 1: Poster distributed to schools in North Korea to raise awareness of unexploded bombs

Secondly, the gunshot wounds and the intestinal worms were not this soldier's only

medical problem. During a full examination he additionally presented with hepatitis, pneumonia, and malnutrition. Until the 1970s the North Korean government had been able to supply farmers with chemical fertilizers, but in the face of increasing economic hardship in subsequent decades, animal and human waste had to be used to secure food production, explaining the parasitic worms. By the 1990s and the dissolution of the Socialist bloc and thus the end of trade and oil subsidies, there was a devastating flood which led to a severe famine, known in North Korea as the Arduous March. Humanitarian groups responded to North Korea’s request for aid, but met with [challenges](#) as North Korea came under repeated sanctions.

Consequently, according to the [International Federation of Red Cross and Red Crescent Societies](#) (IFRC), “an estimated 10.3 million people [in North Korea] suffer from food insecurity, under-nutrition and a lack of access to basic services” due to recurrent natural hazards that in 2018 included “a heatwave, a dry spell, a typhoon, floods and landslides” and a broad sanctions regime that has limited state access to such basic medical supplies as “vaccines, antiviral medicines, rapid testing kits, personal protective equipment for health workers and hand sanitizer.” This example illuminates how politicized differentiations between humanitarian and development aid based on separate funding sources constrain basic life processes and the soldier’s body vividly shows us what happens when supplies of fertilizer and provisions of clean water and sanitation facilities are discontinued.

On the other hand, North Korea’s predicaments are symptomatic of [industrial agricultural production](#) in general. Since its founding in 1948 until the early 1980s,

North Korea had met its food needs. To compensate for its short growing season and the fact that only 18 percent of all land is arable, the state developed a decentralized system of cooperative farms, aided by capital investments in rural electrification, irrigation, mechanization, agro-chemicals, and hybrid seeds. Dependence on coal and hydropower plants, however, accelerated negative impacts on the environment, exacerbated by greater weather anomalies. Over reliance on chemical fertilizers resulted in soil acidification and thus decreasing yields. As previous plots produced less, more marginal lands and forests were cleared for production, leading to deforestation and soil erosion, worsened by foraging, directly contributing to more severe flooding. And still, facing these compounding problems, increasing sanctions over the last decade severely hamper North Korea’s ability to import new seeds and technology.

Historically, the common twentieth century drive for industrial development in the form of state-led developmentalism with an emphasis on heavy industries shaped North Korea’s environment. Like South Korea in the same period, this was North Korea’s policy between the 1960s and 1980s until the 1990s natural disasters and subsequent famine. This led to the imperative to supplement developmentalism with humanitarian aid. Caught *between* developmentalism and humanitarianism, its example shows just how inadequate these paradigms and categories are for addressing environmental issues, which no matter how good or bad the prevailing circumstances require long term solutions rather than short term developmental goals or humanitarian funding.

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Climate change only increased the frequency of disasters and community exposure to the effects of deforestation, landslides, extreme weather, and more frequent and devastating floods, with debilitating consequences on food production. North Korea deals with serious flooding almost every year. Floods cause destruction and loss of lives, homes, and crops. At the same time, drought is common in the spring, coinciding with the rice planting season and affecting sensitive early crops. Thus, North Korea is one of the places most vulnerable to climate change, not only geographically as are parts of Africa, but also politically due to extreme sanctions. Consequently North Korea has little recourse. When access to resources to improve production, like fertilizers, irrigation, and technologies are restricted, even minute changes in weather patterns result in outsized impacts on food production and population sustainability.

The UN Intergovernmental Panel on Climate Change (IPCC) attributes vulnerability to climate change on three factors: exposure to hazards (such as reduced or increased rainfall), sensitivity to those hazards (such as farming dominated by rain-fed agriculture), and the capacity to adapt to hazards (for example, whether farmers have the money or skills to grow more drought-resistant crops). According to the IPCC, all three factors apply to North Korea, as confirmed by its own 2012 climate change report. Adaptation measures, such as better protection against floods, improved organization and connectivity within and between communities, and reinforced adaptive knowledge and capacity, are needed to reduce vulnerability. By sheer necessity then, North Korea has emerged as a “champion in the fight against climate change,” ratifying the United Nations

Framework Convention on Climate Change (UNFCCC, or Convention) in 1994, the Kyoto Protocol in 2005, and the Paris Agreement in 2016. In 2019, the North Korean government established and completed its 2019-2030 national environment protection and disaster risk reduction strategies based on the Sendai Framework for Disaster Risk Reduction. However, the cost of major infrastructure reinforcement often exceeds national resources and the current sanctions against North Korea pose major challenges.

The everyday reality in North Korea reflects global patterns of the developing world in which the top causes of infant and childhood mortality are diarrhea and acute respiratory infections due to lack of access to safe drinking water and adequate sanitation (for almost 40 percent of the population), while cases of pneumonia and tuberculosis are on the rise due to malnourishment and shortage of food, as well as lack of medicines, with more than 5.6 million North Korean people (almost a quarter of the entire population) affected by natural disasters between 2004 and 2015. These and not the mainstream media emphasis on nuclear issues pose the most urgent concern to North Koreans and consequently to the world.

In 1995, the DPRK Red Cross requested international support from members of the IFRC for the first time, following the major flood disaster. An IFRC delegation was established and has since then remained in Pyongyang staffed with 6 internationals and 20 Korean nationals. The initial large scale response focused on food and non-food essentials distribution. Over time the Red Cross developed annual community based programs supported by the IFRC, centered on restoration of water supplies to health clinics and households in cooperative farms,

distribution of essential drugs and basic medical equipment to over 8 million people in 2,000+ village level clinics and county level hospitals, as well as comprehensive disaster preparedness in allocated geographical areas. The local community's own contributions to the programs have been massive and continuous; they provide all labor without financial compensation, and mobilization may involve thousands of villagers to install several kilometers of pipe, plant tree saplings over large areas, or to build mitigation structures against floods. Despite these local measures, international procurement of material like pipes, pumps, and transformers can take up to six months, and does not include the time taken applying for sanctions exemptions. This leads to chronic crises.

In 2005, the North Korean government officially informed international organizations including the IFRC that the country sought to transition from humanitarian assistance to international cooperation on development and sustainability. This request ran into a familiar road block. When funding streams are, for political reasons, restricted to short term (6-12 months) humanitarian budgets, how is it possible to engineer long term, developmental programs. On national security grounds, North Korea could not meet the requirements for banking transparency, external audits of ministry bodies and strict financial regulations required by development cooperation financing instruments.

And yet, somehow, the Red Cross began community support with simple vegetable greenhouses in 2007, in line with policy directions from the North Korean government. Often managed by trained disadvantaged women from the community

(e.g. women from poorer families, female headed households, women with many children, women with disabilities), this project has increased production of fresh vegetables during longer periods of the year and provided a more diverse diet to vulnerable groups. In 2012, a small pilot project commenced for more integration of community programs toward long term sustainability, with seed funds from the Norwegian and Swedish governments as well as the German Embassy in Pyongyang. The Red Cross also applied learning from an exchange mission to Nepal, where the Nepalese Red Cross carries out similar programs led by communities themselves. Learning from the pilot project led to a standard program called the Integrated Community Development Programme (ICDP), with a combination of programs such as disaster preparedness and risk reduction; community based health and first aid; water, sanitation and hygiene promotion; livelihood through greenhouses and reforestation. Over time, the greenhouses have become more substantial and technologically innovative; for instance, through the use of [solar energy](#) favored by the government as part of its push toward renewable energy.

Building on the last ten years' experience, the Red Cross and the DPRK Academy of Science are implementing an EU funded Food Security Project, which includes international technological exchange and capacity building drawing on expertise from European based organizations. In the project plan, the construction of an integrated solar greenhouse with a loop production system is included as shown in the diagram below. This model incorporates breeding of pigs and fish, and the production of methane gas as by-products for vegetable production.

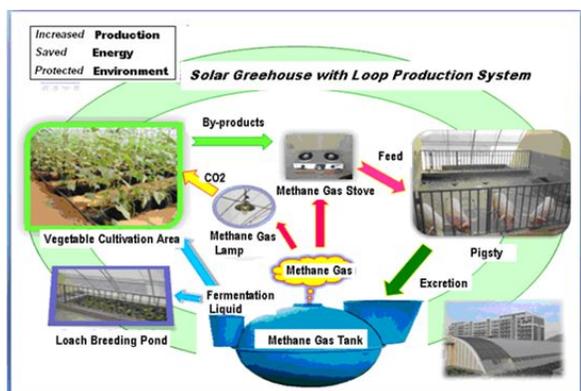


Figure 2: DPRK Academy of Science, September 2016

After 70 years of protracted conflict in Korea, the situation is critical for people’s livelihood as well as for the environment on the Korean peninsula, although environmental issues are not North Korea’s problems alone. The persistent focus on output in the history of industrial agriculture has **depleted the soil** throughout the world, even as climate change further accelerates food shortages. Depleted soils are proof of an agrarian history of mismanaged land use, foreshadowing a grim future for agriculture and food availability worldwide. Enormous investments in “green manure” – grown as nitrogen-fixing crops that is worked into the soil rather than harvested – would be required for sustainable agriculture. But given the short term goals *and needs* to maximize harvests, North Korea has followed the path of the developing world.

From early warnings of increasing weather anomalies and the adverse impact on food production worldwide to the environmental dangers of weapons of mass destruction, North Korea has followed the debate about climate change and its social impact much more closely than one might expect given its current political standing in the world. Parallel to its nuclear weapons program in the last decade, North Korea has also been an active participant and advocate of the

United Nations Framework Convention on Climate Change, voting in 2016 in favor of starting UN negotiations to **ban nuclear weapons** although it has yet to sign the new **Treaty on the Prohibition of Nuclear Weapons** that opened for signatures in 2017.

The inconsistencies reflected in North Korean nuclear policy is symptomatic of the contradictions inherent to nuclear technology, which for under-resourced countries like North Korea can mean both energy and deterrence. If the current model of development and food production – as well as nuclear confrontation – is ultimately unsustainable not just for North Korea but globally, then sustained effort and international cooperation are necessary as demonstrated by North Korea’s own efforts to find a path toward **“sustainable and resilient human development.”** Between the obsolete models of developmentalism and the conventional stopgap measures provided by humanitarianism in the aftermath of developmental failures, the integrated approaches of local first responders like the Red Cross that focus on **community development** offer a model of sustainability that accounts for our symbiotic relationship with the environment.