The Politics of Climate Vulnerability in Asia

By Pamela McElwee

The seriousness of climate change has become readily apparent over the past decades, with increasingly visible evidence of impacts and risks across the globe—from intensifying hurricanes to large-scale destructive wildfires. Asia is often pointed to as one of the most vulnerable regions, given numerous countries with long coastlines and large populations in low-lying areas, such as the Philippines, which regularly experiences destructive typhoons from the western Pacific Ocean. Other countries such as India face potentially severe water scarcity as temperatures rise. Nations such as Laos and Cambodia face challenges like high rates of poverty and resource overexploitation that will test their ability to adapt.[1]

But as this list of potential vulnerabilities points out, there is no clearly agreed-upon way to understand who is most vulnerable to climate change and what should be done about it. Within Asia, different definitions and concepts of vulnerability are used, with no consensus on which approach is the best. In fact, any vulnerability assessment is subjective and contextual, as it depends on what indicators are used, what data is available, and how the assessments are analyzed. Given that such comparisons of vulnerability are subjective, they also can be highly political. For example, vulnerability assessments can allow countries to claim a "victim slot" as suffering from climate impacts without a harder look at their own culpability in causing the problem in the first place.[2] It is common to find countries presenting climate vulnerability as something that has been imposed on them by outside forces beyond their control, without paying attention to the ways in which internal decisions have increased vulnerability to these external exposures. Failures to include future climate risks and vulnerability in current development decisions is a problem across most countries of the world, and is especially acute in the fast-growing but climate-vulnerable countries of Asia.

To highlight these problems, I focus specifically on Việt Nam, which is often cited as a vulnerable country due to large populations living in coastal and low-lying areas, particularly in the Mekong Delta in the south, where nearly half the land area is only one meter (3.3 feet) above sea level. A brutal fall 2020 storm season saw nine typhoons in a row hit the central region, requiring rapid evacuation of millions of people; around 300 people died, and there was extensive property damage from the flooding that lasted for weeks. Việt Nam was an early joiner of the Climate Vulnerable Forum, a group of forty at-risk countries that advocate for stronger climate action at the global level. Members of this coalition have particularly lobbied for increased donor funding for adaptation, and Việt Nam in particular has allocated billions in finance to reduce vulnerabilities and increase the country's capacity to cope with climate impacts.

At the same time, however, Việt Nam continues to have large numbers of people who are vulnerable to climate change because of an unwillingness to rethink current development trajectories. Resource-intensive economic growth in the past three decades has degraded many ecosystems, and concentrated populations and assets in coastal and floodplain areas that place them in the path of climate impacts like sea level rise and increased frequency of hurricanes. Export-led industrial policy and intensive input-heavy agriculture are among the policies that have increased risk and reduced overall resilience. This situation begs the question of whether countries concerned about being victims of climate change are doing enough themselves to avoid creating the conditions by which people become vulnerable.

Defining Vulnerability

Like all social concepts, what "vulnerability" is remains in the eye of the beholder, as there is no agreed-upon definition or way to measure it. The Intergovernmental Panel on Climate Change (IPCC), whose regular assessments of the state of climate science have included discussions of how different areas of the world are at risk, emphasizes that vulnerability is a function of "exposure," "sensitivity," and "adaptive capacity." Exposure is generally understood as the presence of populations, assets, and resources where a hazard may occur or which might potentially be affected

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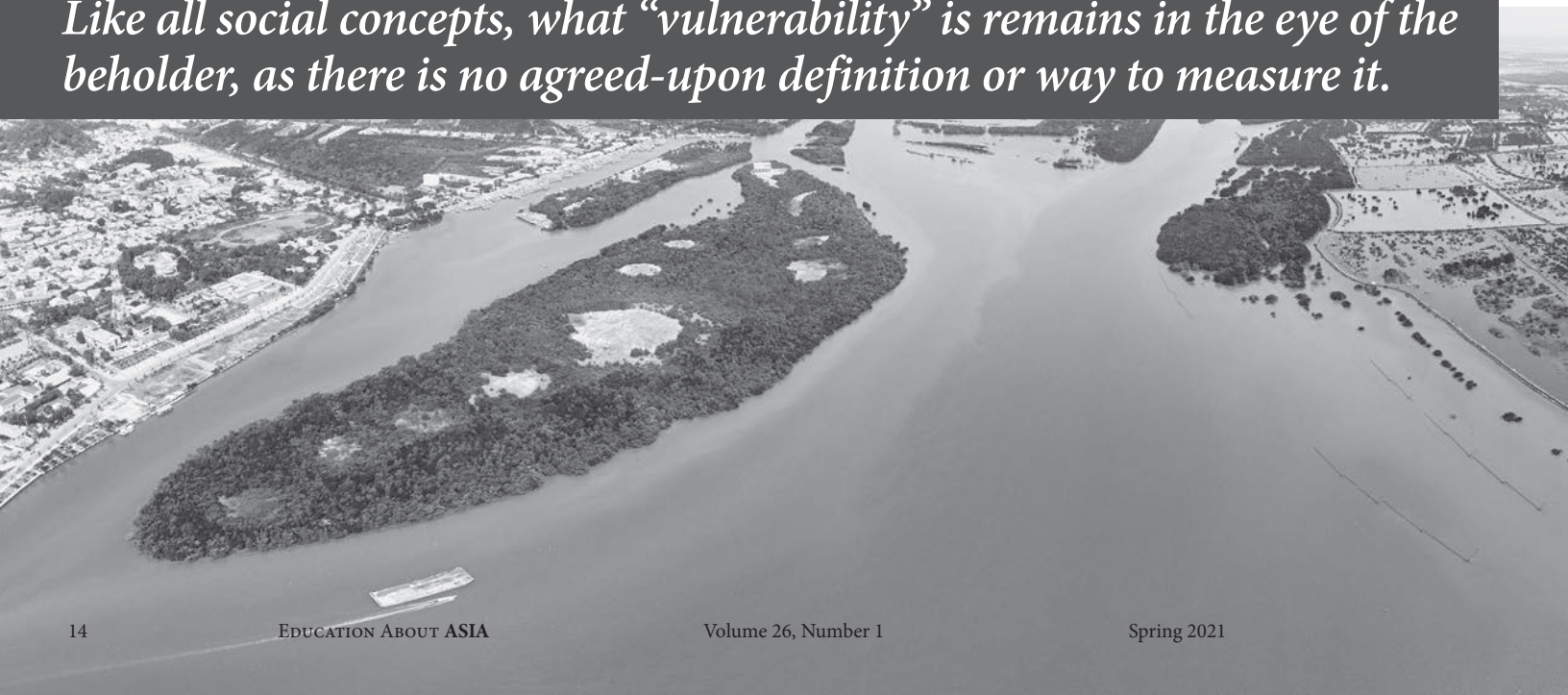

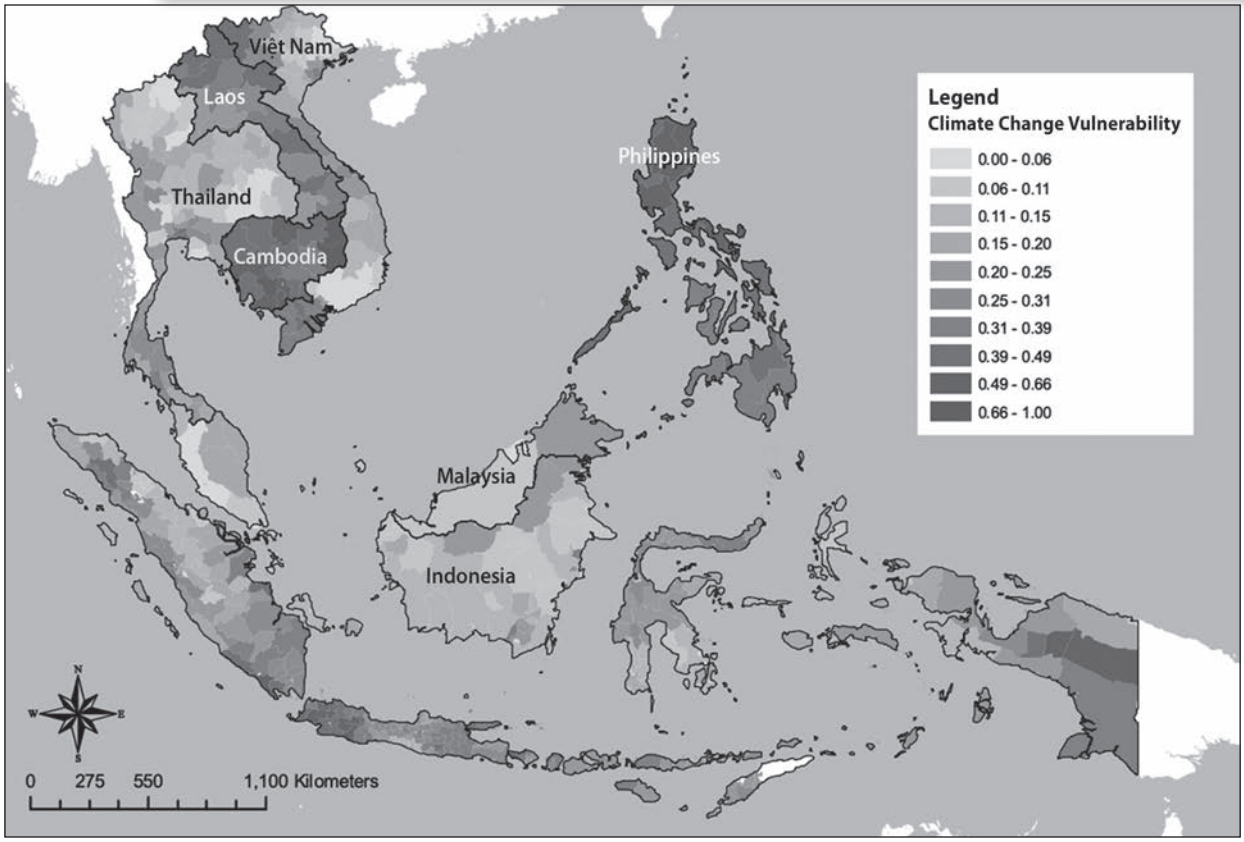

Figure 1. Example of climate vulnerability map for Southeast Asia. Source: PDF document, page 6 in *Climate Change Vulnerability Mapping for Southeast Asia* at https://tinyurl.com/s6vu9n7u.

(such as homes built along a coast where sea level rise may occur). Sensitivity describes the ways harm is felt by different populations and systems unequally, such as the poor who may lack the ability to move away from at-risk areas. Adaptive capacity has been defined as being able to absorb, manage, or bounce back after stress.

But how to measure each of these components is not easy, and finding key indicators for each of these categories is also challenging. For example, depending on the study, the concept of "sensitivity" has been measured by data on human resources (such as literacy rates, levels of education, life expectancy, or mortality), infrastructure (housing quality or levels of road development), economic metrics (gross domestic product per capita, income per capita, or rates of inequality), or physical vulnerability (geographic location, food security, types of ecosystems, or water resources). For indicators of "adaptive capacity," the possibilities are even wider. One report on Southeast Asia used general development indicators such as education levels, poverty incidence, income inequality, electricity coverage, road density, and communication.[3] As seen by the potential overlaps between categories, understanding how indicators for "sensitivity" differ from those of "adaptive capacity" has been a key challenge, as has the problem of collecting the right types of data at the scale needed to understand populations on the ground.

Combining multiple indicators and putting them into a map is a common way to show where vulnerability is highest (see Figure 1). These can be used to identify individuals, communities, regions, and countries that are more susceptible to changes or at risk from specific climate hazards. As an example, a study of eastern India compared districts in four coastal

Aerial view of Hà Tiên City and flooded rice fields on the Gulf of Thailand coast of the Mekong Delta, southern Việt Nam. Source: © Shutterstock. Photo by Fabio Lamanna.

states, finding a wide variety of different potential physical and social vulnerabilities, and allowing authorities to potentially better target aid.[4] In a study of Việt Nam, different provinces varied in number of deaths from natural disasters (like hurricanes and floods), dependent on key factors of inequality, poverty, and infant mortality.[5]

So who are the most vulnerable countries globally, and where does Asia rank? As noted earlier, how vulnerability is assessed depends on the definitions used, scenarios modeled, or data collected. It is common to see discussions of the types of impacts countries are likely to experience as the primary way to understand vulnerability, although this only uses the concept of "exposure" to hazards. For example, lists of the top countries at risk of sea level rise or places with the most people impacted by hurricanes take this exposure approach. Yet impacts alone are not sufficient indicators in and of themselves, because they give no sense of the complexities of social vulnerabilities.

Several global assessments have tried to include multiple dimensions of vulnerability, not just exposure, in their rankings of countries, summing up different indicators into what are known as "indexes" of vulnerability. Examples include the Climate Vulnerability Monitor and the Notre Dame Global Adaptation Initiative (ND-Gain).[6] ND-Gain's rankings put Singapore as the most prepared Asian country for climate change (ranked No. 7 globally in preparedness) and Bangladesh as the least prepared (ranked No. 162). Because different indexes use different indicators, a country can wind up with different rankings. For example, rankings that focus on exposure alone put Việt Nam very high—as one of the top five countries likely to be most affected by sea level rise and fourth in a global ranking of total populations exposed to floods.[7] When other factors were included, such as sensitivity or adaptive capacity, Việt Nam's position shifted; for example, ND-Gain ranks Việt Nam as No. 98 in adaptive capacity to climate change, a middle-of-the-road position.

Other researchers have developed indexes and models specific to Asia as well. These include the Asian Climate Security Vulnerability Model, which assesses the greatest risk of death from climate events in eleven Asian countries, finding that Bangladesh, Myanmar, and Pakistan were at highest risk with the most vulnerable peoples.[8] A Social Vulnerability Index (SoVI) originally developed for the US, which uses eleven major indicators—including wealth, age and race, density of the build environment, and housing stock—has also been applied in Asia, where researchers have used it to examine China's Yangtze River Delta. There, key indicators of vulnerability included employment and poverty, education, poor housing quality, minority status, family size, and housing size.[9]

Yet across these indexes, one major challenge is that defining what researchers believe will impact vulnerability and adaptive capacity are often hard to capture with single quantitative measures, such as the concept of "good governance" or "strong communications networks," leading to the important point that there is no one perfect indicator.[10] Further, once indicators are selected, each has to be given different weights (for example, is poverty the same as access to roads?). And finally, simply collecting the data to reflect these indicators is not an easy task; while many Asian countries do collect national census data regularly, some of the indicators relevant to climate vulnerability (such as water availability or levels of communication) are not regularly assessed. Standardized data collection at national levels also may not provide as fine of a scale of analysis as is needed to design and implement projects at local levels to reduce vulnerabilities. A final problem is capturing the dynamic nature of vulnerability, as quantitative approaches in indexes are more likely to present a static snapshot at one point in time.

The Political and Financial Rewards of Vulnerability

Because there is no clear standard on vulnerability (nor is there likely to be), which definition and index to use can become a political decision. Some countries use their "rankings" of vulnerability to attract donor support and advocate for certain positions. For example, the prime minister of Việt Nam called for an international fund for the five countries to be most affected by sea level rise—Việt Nam, Bangladesh, the Bahamas, Egypt, and Surinam—after a publication of an exposure-based vulnerability ranking by the World Bank.[11] Thus, there is potentially political capital in being seen as "climate vulnerable."

Jockeying between countries for higher vulnerability rankings can already be seen; Việt Nam's political leaders, for example, often emphasizes

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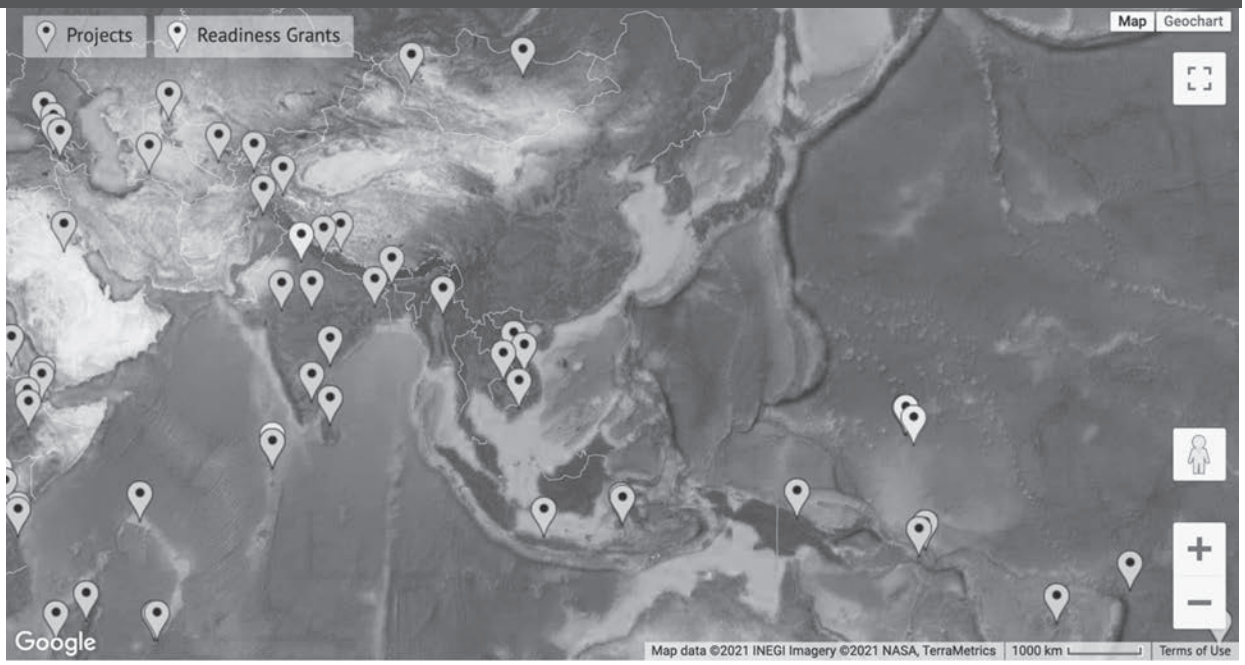

Figure 2.
Locations of Adaptation Fund projects in Asia.
Source: *Adaptation Fund* website at https://tinyurl.com/3y9nuj96.

Moody's, which rates the fiscal strength of different government entities, released a report in 2020 stating that sea level rise in particular is likely to affect the creditworthiness of major countries like Việt Nam.

September 2019. High tide brings flooding to the streets of Ho Chi Minh City, Việt Nam.
Source: © Shutterstock.
Photo by xuanhuongho

one aspect of their vulnerability—high population numbers exposed and percentages of arable land area that will be affected—to vault them ahead of other countries like small island states (e.g., Tuvalu), where much smaller populations and smaller areas are affected. Yet these small islands have pushed back, noting that higher percentages of their populations will be affected and that they have insufficient land on which to relocate, making *them* more vulnerable. Thus, what to emphasize in vulnerability measures becomes contested ground and cannot be reduced to simply "neutral" or "scientific" measures, as choices of what to measure reflect values around what is important.

Vulnerability rankings may also affect access to global climate financing, which is finite and must be allocated fairly. The Green Climate Fund and Adaptation Fund (AF), both of which distribute billions of dollars of pledged assistance for developing countries to tackle climate change, have to use measures of vulnerability to make their choices. The Adaptation Fund, for example, uses criteria of "level of vulnerability," "level of urgency," and "adaptive capacity," among others. Countries that apply for funds usually self-identify their levels of vulnerability using their own criteria. But as researchers have shown, many of the decisions of these funds are more political than not, including basing decisions on the ability of countries to use money wisely, not just their vulnerability levels.[12]

Given this, it is easier to see why climate funds go to some countries and not others. In existing AF projects, Asia has been behind Africa as a region in terms of total investment, and within Asia, some areas that experience multiple hazards, such as the Philippines, have received no AF projects, while others (such as Indonesia) have multiple funded activities (Figure 2). For the Green Climate Fund (which funds both mitigation and adaptation projects), Asia just edges out Africa in total number of funded

Table 1
Projects and Investment Levels from the Green Climate Fund as of Late 2019

Country	Number of Projects	Total Financing in Millions USD
Bangladesh	6	351
Bhutan	2	59.1
Cambodia	3	44
China	1	100
India	3	177.8
Indonesia	5	213.3
Laos	2	28.6
Mongolia	9	262.2
Myanmar	2	4
Nepal	2	66.7
Pakistan	3	121
Philippines	2	15.6
Timor-Leste	1	22.4
Việt Nam	3	146

Source: Green Climate Fund.

A New York Times *article declared that by 2050, "Southern Việt Nam could all but disappear."*

Figure 3. 2050 flood projection map for the Mekong Delta. The dark area represents the projected high tide flood zone.
Source: *Climate Central* website at https://tinyurl.com/59jrwfwb.

projects (sixty-four to sixty-three). Yet within Asia, Bangladesh and Mongolia have received the highest amounts of total investment, with some countries, such as Thailand, receiving nothing at all (see Table 1 on p.17).

At the same time, there is potential danger in being seen as "too vulnerable." If a country is too hazardous or too likely to experience harm that might impact economic trajectories, then foreign direct investment (such as to build factories or expand agricultural development) might be directed to a less vulnerable place. Perceptions of higher risk can also affect sovereign credit ratings, which are the scores that countries receive reflecting their ability to repay loans and manage finances. Moody's, which rates the fiscal strength of different government entities, released a report in 2020 stating that sea level rise in particular is likely to affect the creditworthiness of major countries like Việt Nam. Sea level rise could cause lost income, damage to infrastructure and other assets, or force out-migration, such that countries would lose tax revenue or become overindebted to deal with the impacts. If countries' sovereign credit scores change due to questions about these risks, the interest rates by which they borrow are likely to go up, potentially costing countries additional billions in extra fees.[13]

For Việt Nam, this question of the politics of risk is particularly acute around the Mekong Delta. The direst projections of combinations of sea level rise and land subsidence (the sinking of land due to overextraction of groundwater and overbuilding of heavy structures on top of land) mean that large areas of the delta are likely to be subject to regular floods, if not permanent inundation, later this century. Therefore, much of the delta, which is home to nearly twenty-two million people, may not be where financiers would want to build long-term investments, imperiling Việt Nam's development planning, in which the delta and Ho Chi Minh City (with another nine million in population) are seen as major drivers of growth.

Such thinking clearly influenced Việt Nam's reactions to a report by Climate Central, a US scientific research organization, in fall 2019. The report used new methodologies to extrapolate elevation in relation to sea level and found that many areas of the world are at lower elevations than once thought, and are thus even more suspectable to the impacts of sea level rise.[14] A *New York Times* article to publicize the report used dramatic maps of high tides in the future and declared that by 2050, "Southern Việt Nam could all but disappear"[15] (Figure 3). The story caused great concern in Việt Nam, but the response was less about the implications of increased flood risk for local populations and more about the political implications of such a finding.

Within a day of the reporting, an "official rebuke" by the deputy director of Việt Nam's Institute of Meteorology, Hydrology, and Climate Change was issued. The scientist noted that the Climate Central report was based on overly extreme long-term emissions scenarios and "could not be better than data provided by the Ministry of Natural Resources and Environment (MONRE)."[16] Vietnamese officials and scientists pushed their concerns that the work was "not scientific" because it projected future sea level rise by the end of the century to be around two meters (6.6 feet) rather than the one meter (3.3 feet) that is deemed more likely to happen. There was also a strong feeling that Vietnamese scientists and their data should have been involved; no data was actually collected on the ground in Việt Nam for the study, so the assumption was that it was inaccurate, even though it was derived from satellite data.

Government officials particularly objected to *The New York Times*' use of the word "disappear" (translated into Vietnamese as *bị xóa sổ*) with regard to the Mekong Delta. Vietnamese newspapers interviewed the original Climate Central researchers, who said they would have characterized the Mekong Delta as being "at risk of frequent flooding" as the more accurate phrasing, "but this does not mean that those lands are definitely inundated. For example, the construction of protective structures can help prevent this risk."[17] This caveat lent credence to the idea that Việt Nam would be able to minimize the damage to the delta through land use planning, sea dikes, and other active measures.

The concerns raised by the Climate Central report even came to the level of Prime Minister Nguyễn Xuân Phúc, who addressed the National

Assembly and strongly affirmed that "there is no scientific basis to conclude that in the next thirty to fifty years, the Mekong River Delta and some provinces and cities will be submerged below the level of water rise."[18] He further emphasized that the Netherlands has much of its land area below sea level and still manages to be a developed and wealthy country, and that Việt Nam "must turn the risk from climate change . . . from saltwater to opportunity." To further confirm that the Vietnamese government does not believe it is at risk of losing investments in the Mekong Delta, there have been a number of publicly announced infrastructure projects to show this confidence in a performative way: major new expressways between delta cities, massive irrigation works, and big urban redevelopments.

Figure 4. Boats on Đông Tranh River, the longest of the main rivers in Cần Giờ Mangrove Biosphere Reserve, Việt Nam, at risk of development. Source: © Shutterstock. Photo by Nguyen van vien.

Development Choices Often Increase Vulnerability

A final aspect of the politics of vulnerability is the way climate is often framed as an external problem. A number of developing countries represent vulnerability as something caused by other high-emitting, carbon-producing, richer countries, which is true, but this does not take into account that internal choices made by countries often exacerbate such vulnerabilities. For example, in discussions with this author, policymakers at the national level often discuss Việt Nam's various physical vulnerabilities and the dangers of increasing global greenhouse gas emissions without discussing choices Việt Nam has made internally, such as policies to expand export shrimp production, pursued at the cost of losing many mangrove forests, in the process emitting carbon and decreasing coastal resilience.

This is not unusual; climate change vulnerability can and will contradict development trajectories set by governments, and few countries have comprehensive plans to tackle both carbon emissions and climate vulnerability together. Việt Nam's record-breaking economic growth in the past three decades has encouraged land use planning that allowed people to build in risky areas, concentrating assets in coastal areas and floodplains. It has also focused investment and priority to small numbers of crops that require heavy investments in seeds, pesticides, and other inputs, and that are climate sensitive.[19] Excessive rates of abstraction of groundwater due to unregulated private borewells and industrial facilities that overuse water supplies have caused land subsidence (sinking) in many areas of the country.[20]

When this author asked a high-ranking official in Hanoi in 2009 if development choices needed to be "climate-proofed" or changed in any way in light of climate change forecasts, he said that Việt Nam should not take any steps that might hurt economic development, stating, "If Việt Nam does not continue to develop and raise incomes, there will be no money for investment in policies for climate change, so that should be the first priority. On the one hand, Việt Nam would like to solve the problem of carbon emissions, but if Việt Nam does not industrialize, it cannot get rich and solve the problem with additional money."[21] The official gave the example of the US, which did not sign the Kyoto Protocol in 1997 to curb climate emissions because of economic concerns, stating that Việt Nam has clear precedent to not do anything that might jeopardize continuing growth.

As a result, policymakers in Việt Nam commonly share a mindset that current economic growth always trumps future climate risk and vulnerability. This question goes beyond carbon neutrality pledges, which some countries (although none yet in Southeast Asia) are now making. Rather, overall development planning decisions, including where to put new infrastructure and what types of investments to make in jobs and exports, do not yet reflect the reality of either exposure to future climate risk, or the need to reduce existing and future social vulnerabilities in most developing countries. For example, even in provinces vulnerable to current river flooding, local governments in Việt Nam often authorize mining and sand dredging along riverbanks, which increase the impacts of floods and which will be amplified under future climate change.[22] In another example, the country's largest city, Ho Chi Minh City, has long benefited from 20,000 hectares (49,421 acres) of replanted mangrove at the mouth of the Saigon River to slow tidal action, which when combined with sea level rise, threatens more areas of the city with flooding. However, in mid-2020, construction plans were approved for a huge new suburban and tourist-oriented planned community next to the mangrove belt, costing $9 billion US and involving heavy dredging and construction of several hundred thousand homes, endangering this natural buffer and placing this new urban development in a risk zone for future sea level rise (Figure 4).

These problems of the politics of vulnerability are not unique to Việt Nam or Asia. Many countries are publicly concerned about being at risk of climate change while at the same time pursuing development policies that increase their vulnerability. Very few countries have tried to systematically tackle what geographer Karen O'Brien has called the need for "deliberate transformation," which she defines as "a questioning of the assumptions, beliefs, values, commitments, loyalties, and interests that have created the structures, systems, and behaviors that contribute to anthropogenic climate change, social vulnerability, and other environmental problems in the first place."[23] In other words, vulnerability to overall climate change is not simply a matter of being an unfortunate victim of geography, but is often a matter of deliberative choices and values.

Managing the enormity of climate risk requires an understanding that decisions have to be made now about how much change can be coped with, and particularly hard questions need to be asked regarding how development trajectories may need to be radically reconfigured in a world that is potentially two or more degrees warmer. Not taking action now to limit development within areas known to be especially vulnerable to climate impacts, such as to regulate groundwater abstraction, sand mining, or where new peri-urban (areas immediately surrounding a city or town)

subdivisions are built, may mean that many countries will face enormous costs of resettlement or new investments down the road. Coastal withdrawal and retreat, of having to abandon a site and go elsewhere, is a very real possibility, and one that Indonesia is facing now, with a recent decision to move the capital away from Jakarta on the island of Java due to subsidence, pollution, and overcrowding. Such steps provide a foreshadowing of what may face other Asian countries in the future.

Thus, we need more recognition that vulnerability is political, both in how we understand the concept and how we measure it, but also in more fully comprehending that vulnerability is often made and is not a preexisting condition. How risks are created and the ways in which development paths and choices structure vulnerability should be an important focus for many governments like Việt Nam, which are facing pressing impacts from climate change across multiple sectors, while at the same time wanting to fulfill hopes of economic growth, poverty reduction, and better quality of life for their citizens. ■

NOTES

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