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**Climate Change and National Security:  
A Country-Level Analysis – Book Review**

*Edited by Daniel Moran (Prof of National Security Affairs, Naval Postgraduate School,  
Monterey CA). Washington: Georgetown U Press, April 2011, 310p, \$29.95pb.*

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This extraordinary book “seeks to appraise the intermediate-term security risks that climate change may pose to the United States, its allies, and to regional and global order,” (p1)

and to be “broadly representative of the security challenges that climate change may pose during the next few decades.” (p3) It considers the most readily anticipated effects of climate change, along with known political and social conditions of important states and regions, based on country-level data prepared by Columbia University’s CIESIN (Center for International Earth Science Information Network). CIESIN’s data on temperature change, freshwater availability, and sea-level rise are summarized in Appendixes A and B.

These meticulous and amply-documented essays originated as presentations at a workshop sponsored by the National Intelligence Council, prepared for the U.S. House of Representatives in June 2008. But are the forecasts for 2030 out-of-date? Not at all. As stated by Daniel Moran in his conclusion, “it is most unlikely that any new insight will be achieved in the next twenty years that will falsify today’s scientific consensus so decisively as to render the issue of climate change inconsequential to public life.” (p.269)

Many books on climate change have been published, and many of these warn in general about floods, droughts, storms, threats to agriculture, and displaced populations. The value of these essays is that they are country-specific, as concerns questions of state capacity, social resilience, population movement, and the differential impact of climate change across the agricultural and industrial sectors, and on sub-national regions. “The most important source of cohesion among the contributors to this book is a shared sense that, whether or not the Earth’s climate is palpably hotter in twenty years than it is now, the politics that surrounds climate almost certainly will be.” (p269) It may be easy to underestimate the threat that climate change poses to the stability of otherwise well-established regimes. Climate change poses an especially insidious sort of challenge to policy, combining gradual accumulation of relatively subtle effects and an increasing tendency toward dramatic events liable to galvanize public opinion. “*Climate change will, without question, provide many opportunities for governments to embarrass themselves.*” (p271). These strains will not necessarily lead to outright state failure, but such an outcome is possible.

Chapters are as follows. Note especially the growing fragility and/or serious threats to China, Vietnam, The Phillippines, India, Pakistan, Bangladesh, Turkey, Egypt, The Mahgreb, and Southern Africa.

1) **China.** “Climate change is expected to wreak havoc on China” through decreased precipitation (declining runoff to the six largest rivers in China has been observed since the 1950s), increased desertification, increased severity and frequency of weather events such as heat waves, glacial melt with severe impact on lakes and rivers, and sea-level rise of 0.4 to 1.0 meter by 2050 (which would submerge an area the size of Portugal along China’s eastern seaboard, e.g.: most of Shanghai is less than 2 meters above sea level). Due to climate change, “domestic instability within China is probable if current trajectories continue.” (p.13) Particularly at risk are China’s agricultural system and its ability to maintain strong economic development and foreign trade.

2) **Vietnam.** The world’s 13<sup>th</sup> most populous country [89 million in 2010] is poised to become a major regional actor in the next two decades, but global climate change places it in jeopardy: “Vietnam is likely to be one of the countries most affected by global climate change.” (p.38) It is one of the most disaster-prone countries in the world, with a coastline of 3,200 km regularly lashed by typhoons producing large-scale flooding, and tropical storms are increasing in frequency and impact.

3) **The Philippines.** Rising sea levels pose an enormous risk to a country [94 million people in 2010] with 7,150 islands and >36,000 km of coastline, and some 15 million people living in the 1-meter low-elevation coastal zone. Even in the best of times, the frequency of typhoons, floods, earthquakes, and volcanic eruptions makes the Philippines one of the most disaster-prone countries. Recent decades have brought unprecedented and mounting levels of stress in every major ecological zone, after “decades of sustained environmental degradation.” Urban areas are also under mounting stress, with major infrastructure deficits in water, sewage, drainage, transport, and pollution control.

4) **Indonesia.** The world’s fourth most populous country [236 million in 2010] has >17,000 islands and a coastline of >54,000 km. Nearly all major cities are in coastal areas vulnerable to rising sea levels, although only 1.1% of the population is in the 1–meter zone. Temperature changes are expected to be relatively modest, but, even so, can affect important food sources such as rice, maize, and fisheries.

5) **India.** Water shortages will affect agricultural production, especially in already-arid areas. Snow melt from the Himalayan glaciers could alternate between abnormally low flows in early summer and winter and very high flows during the monsoon, “posing the double risk of drought followed by flood.” If monsoonal rains become increasingly erratic, “there will likely be serious food shortages in the regions that depend on them.” If so, rich/poor and urban/rural gaps could widen further. The vulnerability of a large portion of India’s population is likely to be worsened by climate change. A large-scale migration of Bangladeshis to India could produce major conflicts, and relations with Pakistan are likely to be further complicated by disputes over water.

6) **Pakistan.** In the next 20 years, climate change will stress the Pakistan state and exacerbate its current fragility. But climate threats “will almost certainly be dwarfed by other political, economic, and military factors in determining (Pakistan’s) fate.” If the Pakistani state collapses before 2030, it will not be because of climate change alone. But “climate change will contribute to domestic and regional competition, conflict, and hardship during the next 20 years.”

7) **Bangladesh.** The 7<sup>th</sup>-most populous country in the world [164 million people in 2010] is “extraordinarily vulnerable to the impacts of climate change, particularly rising sea levels.” Bangladesh has already been ravaged by catastrophic floods in 1998, 2004, and 2007, and floods are occurring more frequently. A 1-meter rise in sea level would submerge one-fifth of the country. “The disruptive possibilities of climate change, both internally and externally, may weaken the capacity of the Bangladeshi state in many ways. They may also strengthen its authoritarian tendencies.” (p.109) Complete failure of the state is very unlikely, but the combination of limited resources, simmering public discontent, and possible radicalization may accentuate the crisis of governance. Sea-level rise, severe storms, repeated floods, increased water salinity, and worsening water scarcity will affect the availability of food.

8) **Russia.** Geology, geography, and climate may make Russia not merely a survivor, but a beneficiary of environmental changes elsewhere experienced as deterioration. Rising global temperatures are likely to reduce stresses and constraints of life in the high northern latitudes, and should reduce heating costs. Rising sea level is unlikely to flood significant areas, and changes in temperature and rainfall may benefit agriculture on balance. Thawing could unlock “vast known reserves of oil, natural gas, and other natural resources.” But climate change will create stresses that affect Russia indirectly; the worst-case scenario of climate-induced violence would arise from conflict with China. An influx of southern immigrants due to climate change is likely to reignite violence in the North Caucasus (or Caspian) region.

9) **Central Asia.** The five formerly Soviet countries already face notable risks of destabilization. Probable areas of concern in order of likely magnitude: locally significant shortages of water, immigration/refugee flows from Afghanistan and China, food shortages from fluctuations in harvests or food prices, and an increased appetite for authoritarianism as a way to address problems of resource scarcity.

10) **European Union.** Although climate change poses “significant risks to vulnerable infrastructure and health,” the primary areas of concern are environmental migrants from neighboring regions, sea-level rise, and changes to the geopolitics of the Arctic. Threats to availability of water and food among Europe’s less-developed trading partners are a particular concern. “It seems certain that the politics of climate change will retain a prominent place in European public life.” Transatlantic climate politics appear likely to remain contentious. “The EU appears poised to sustain global leadership on the issue, possibly adding to the global sense that the US is to blame for accelerating climate change.” (p.149)

**11) Turkey.** Serious environmental stress in coming decades may lead to both conflict and external aggression, in addition to population movements. Rising temperatures will have their most adverse effect on the southeastern part of Turkey. Tourist sectors of Turkey will suffer from rising water levels. Increasing erosion has led to a substantial loss of topsoil, reducing agricultural output and raising food prices. A UNDP study estimates that 86% of Turkey's total land area is vulnerable to desertification. Water will most likely become a scarce commodity, and illegal trade in water supplies may emerge.

**12) Persian Gulf.** The region is one of the world's hottest, most water-starved environments, with water demand projected to double by 2025. All of the Gulf states have taken dramatic steps to build desalinization plants. Despite these prudent steps, Persian Gulf regimes all remain vulnerable to fluctuations in global energy markets and "will face profound environmental stresses resulting from climate change in the coming decades." Governments will continue to "publicly embrace green development policies at home while joining together with other states to forestall a global system that will limit emissions... They will also seek to avoid schemes that distribute their wealth to the less-developed world to pay for climate-related mitigation and adaptation efforts." (p173)

**13) Egypt.** Rapid population growth will increase demand for water and energy resources, at the same time that rising temperatures may reduce drinking water from the Nile Basin, which provides 95% of Egypt's water. Concentration of population and economic production in the Nile Delta means that many Egyptians will likely suffer due to even a moderate rise in global sea level. One Egyptian environmental expert views Egypt as "the third most vulnerable country in the world to climate change, surpassed only by Bangladesh and Vietnam." The World Bank concludes that climate change would result in "catastrophic consequences" for Egypt.

**14) The Maghreb.** Climate change will affect Morocco, Algeria, Tunisia, and Libya in profound ways, and these countries are "already characterized by exceedingly fragile environmental conditions." The agriculture sector is precarious, with temperatures and dry days expected to rise, resulting in decreased yields of key crops. Coastal regions are at risk from sea-level rise and inundations, and accompanying salinization of coastal groundwater. This will have an impact on the tourism sector. The major domestic social impact from climate change will be accelerated and probably chaotic urbanization, as migrants leave stressed rural areas. Climate refugees from the Sahel and Sub-Saharan Africa will create further stress and civil conflict.

**15) West Africa I.** "By 2030 considerable parts of Nigeria may confront issues related to climate change, which could seriously affect agricultural production, water availability, and coastal environmental conditions." Desertification in the north and erosion elsewhere are major concerns. A rise in sea level may pose serious risks to important parts of the country. In a worst-case scenario, climate change could contribute to state failure. Senegal faces the most widespread and adverse climate change problems, but its ability to cope surpasses that of Nigeria and Cote d'Ivoire.

**16) West Africa II.** Projected 2030 climate changes for Guinea, Liberia, and Sierra Leone are modest. Given the history of instability in the region, “climate change adds only a few drops of fuel to this tinderbox.”

**17) Southern Africa.** Much of what is probable in the next 20-30 years has already begun in many parts of the region: increasing temperature, more frequent and severe drought, and problems of freshwater availability. Climate change will likely lead to conflict over food, access to water, and economic opportunity. South Africa accounts for 80% of Southern Africa water use, but only 10% of the total water resource.

**18) The Northern Andes.** Bolivia in 2030 will be in the worst position of the region’s countries in agricultural productivity. Ecuador will be in the worst position in the event of a 1-meter rise in sea level. Glacier retreat is a critical issue not only in Bolivia and Ecuador, but in Peru and Colombia. All four countries are experiencing high or rising level of social conflict and political turbulence, making this region the most volatile part of Latin America. “The nature of political and civil society in these four countries leaves little room for optimism about effective responses to the challenges of climate change.” (p.256). However, there is substantial and growing variation in the capacity of subnational governments in each of these countries.

**19) Brazil.** The largest country in Latin America is taking steps toward a leadership position in global climate change negotiations. Brazil does face climate change risks, especially the likelihood of increasing internal migration from the Northeast to the Southeast, and from rural areas to major cities. There is potential for great political stability in the region, however, because of Paraguay’s vulnerability to climate change. There is also “widespread” but exaggerated anxiety in Brazil that the ecologically important Amazon region will be internationalized.

Some important conclusions by Moran (all on p.272):

- 1) “climate change is likely to increase social inequality within countries at almost every level of development”;
- 2) “it is also likely to heighten strains between urban and rural populations, a crucial fault line throughout the developing world, and one across which large-scale population movements are likely to be especially stressful”;
- 3) “the critical path connecting climate change to social and political failure lies less through rising temperatures or rising sea level than through the changing distribution of freshwater”;
- 4) “as public consciousness of climate change and its perils expands, so too will public awareness that the historical responsibility for these perils is not universally shared but lies at the feet of a handful of states”; China is now the largest producer of greenhouse gases, and Indonesia will soon outstrip all of the EU as a carbon emitter; India and Russia also rank high in generating greenhouse gases; “however, none of these nations is likely in the period that concerns us, to surpass the United States on a per capital basis.”

**Comment**

Through detailed socio-political analysis of individual nations--and regions within them--one can gain a far greater appreciation of the specific impacts of climate change in the decades ahead, and well-populated countries that are most at risk: Bangladesh, China, India, Vietnam, The Philippines, Turkey, Egypt, Nigeria, and South Africa. The only complaint with this book is that it invites curiosity about other countries, e.g. Canada (presumably a net beneficiary, like Russia), the U.S. (a net loser, especially in arid regions), Mexico (expecting increased temperature and decreased precipitation; a strong national climate change law was passed in April 2012), Japan and South Korea (presumably taking steps toward sustainability), and Australia (where many weird weather events have recently taken place).