Analysis

A recurring anarchy? The emergence of climate change as a threat to international peace and security

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Robert Kaplan's 1994 article, 'The Coming Anarchy' was a milestone in the literature on the links between environmental change and security. The article predicted that disease, corruption, overpopulation, scarce resources and climate change would plunge West Africa into pervasive conflict. Nearly a decade and a half—and several civil wars—later this article returns to West Africa to see to what extent Kaplan's predictions have come to pass. While West Africa may not have followed exactly the trajectory that Kaplan foresaw, he did correctly predict that climate change would be recognised as a threat to international security. This paper reviews in greater detail the development of conceptualisations of environment and security that influence current discussions over the potential impacts of climate change on security, paying particular attention to the ways in which West Africa is vulnerable to the impacts of climate change.

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Introduction

In his influential 1994 article 'The Coming Anarchy', American journalist Robert Kaplan used a description of his travels in coastal West Africa to describe how 'the political character of our planet is likely to be in the twenty-first century'.[1] It is a frightening place. Kaplan painted a bleak picture of West African descent into endemic conflict, overwhelmed by 'disease, overpopulation, unprovoked crime, scarcity of resources, refugee migrations, the increasing erosion of nation-states and international borders, and the empowerment of private armies, security firms, and international drug cartel'.[2] He argued that this volatile and destructive mix was spreading to other regions and would be exacerbated by rising sea levels, changing rainfall patterns and more frequent natural disasters arising from anthropogenic climate change. His core message was that, 'it is time to understand "the environment" for what it is: the national-security issue of the early twenty-first century'.[3]

Political and economic conditions in much of West Africa remained desperate in the region for much of the 1990s, but in recent years the 'growing pervasiveness of war' predicted by Kaplan has ebbed.[4] While still desperately poor, today most countries in that region are on a more positive socio-economic trajectory than 15 years ago. But Kaplan's foresight in identifying environmental issues such as climate change as emergent national security threats was prescient.

In recent years, the potential security threat posed by climate change has caught the world's political imagination, generating a perceptible shift in the way that a growing number of decision-makers in the North and the South are talking about the subject.[5] The African Union, in a January 2007 decision, expressed grave concern about the vulnerability of Africa's 'socio-economic and productive systems to climate change and variability and to the continent's low mitigation and response capacities'.[6] The European Security Strategy predicts that climate change will aggravate competition for natural resources, and likely increase conflict and migratory movements in various regions.[7] Meanwhile, climate change has become a core foreign policy priority of many governments, including the new administration's programme in the US, a move that is rationalised, at least in part, by the security threat it presents.

The potential consequences of climate change for security, the environment and human well-being are grave. To date, though, much of the drive to 'securitise' the debate on climate change appears to have been focused on investing in the campaign to reduce

greenhouse gas emissions with greater urgency. In particular, appealing to the hard security concerns of the large emitters (especially the US, China, Russia and India) is seen as an effective way to help them make the politically and economically difficult concessions necessary for an effective deal to replace the Kyoto Protocol when it expires in 2012.

As perhaps befits a Northern-led mitigation agenda, much of the analysis of the security implications of climate change has been conducted by Northern researchers based in developed countries (including, admittedly, these two authors). Broad-based, global assessments and scenarios of the security implications of climate change are being attempted, but the country-level and sub-national security impacts of climate change have yet to be articulated with precision in the current political rhetoric. The available analyses have tended towards the worst-case scenarios, which, like Kaplan's, often seem to assume an almost automatic progression from environmental stress to violent conflict. While this may be a convenient way of generating political momentum to 'do something' to reduce our greenhouse gas emissions, it is perhaps a less effective way of 'doing something' about the security risk of climate change.

The processes that Kaplan described are reflective of a widely-held conceptualisation of the relationship between environmental stress and security. This type of thinking has again become fashionable, with climate change now being described as the most pressing environmental stressor of interest. This paper explores the development of conceptualisations of environment and security that influence current discussions over the potential impacts of climate change on security. To illustrate, we devote particular attention to the ways in which West Africa is vulnerable to the impacts of climate change, and draw upon recent empirical evidence and climate change scenario planning research from two West African countries: Ghana and Burkina Faso.

Africa, though the least responsible of all continents for greenhouse gas emissions, is typically seen as the continent most likely to suffer climate change's worst consequences.[8] This vulnerability is a function of the continent's reliance on climate-dependent economic sectors such as rain-fed agriculture, its low level of development and its history of ethnic and political conflict. Whether such climate-related stresses can be expected to reverse current trends and stimulate instability and potentially violent conflict will be influenced by the capacity of West African populations to adjust and adapt. From the case studies of Ghana and Burkina Faso emerge an underlying message that in order to generate analytically sound forecasts of how climate change will influence future security, be it in West Africa or elsewhere, attention must focus on the range of region-specific

socio-political-economic sensitivities, the extent of future climatic and non-climatic threats and the adaptive capacities of populations at local and national levels.

The emergence of climate change as a threat to security

Academic research on environmental change and security gained popularity in political science and security studies in the 1990s. With Cold War-related security issues on the wane, US policymakers began looking more closely at non-traditional security concerns such as environmental change, poverty and diseases such as HIV/AIDs.[9] In so doing the idea of what constituted 'state security' expanded beyond the risk of direct military aggression from hostile states to more nuanced concerns about the regional instability that could affect economic security and draw Western governments into regional conflicts. Research of this type included studies that worried about the role of fresh water shortages as a potential trigger for violent conflict;[10] that pointed to land degradation as a source of conflict between agriculturalists and pastoralists in the Horn of Africa;[11] and that explored the ecological and demographic origins of the Rwandan genocide.[12] Homer-Dixon, whose work strongly influenced Kaplan's, used information gathered from a variety of cases, many in Africa, to describe a number of possible scenarios in which intrastate and interstate conflict could emerge from the interaction of environmental degradation and human population growth.[13] Strizzi and Stranks warned that land degradation in western China was contributing to political unrest between the state and that country's large Muslim minorities.[14]

At that time, climate change science was still relatively new; the general circulation models on which projections of future climate were made were relatively crude, and the knowledge of the role of oceans, airborne particulates and other influences on atmospheric conditions was considerably poorer than it is today (though we still have a long way to go to improve our understanding of such things). It is therefore not surprising that climate change and its impacts ranked fairly low on Homer-Dixon's list of potential environmental threats to security, coming after agricultural land degradation, fresh water scarcity, deforestation, fisheries depletion and stratospheric ozone depletion.[15] It was in the environmental refugee literature, which coalesced around definitions and descriptions published by El-Hinnawi in 1985, where we began to see in academic research the loudest early warnings that anthropogenic climate change had the potential to lead to widespread food scarcity, conflict and large-scale distress migration.[16]

In recent years, improved scientific understanding of the risks of anthropogenic climate change has steadily pushed it to the top of the list of environmental threats to human security. There has also been a trend toward treating climate change not as a new threat or set of threats to security, but emphasising its potential to alter the severity of already-established threats to security.[17] Analysts have suggested at least five ways in which climate change could undermine peace and stability, be it locally, regionally or globally.[18] First, volatile weather patterns, coupled with changes in rainfall and temperature, have the capacity to reshape the productive landscape of entire regions and exacerbate food, water and energy scarcities. Second, more frequent and intense natural disasters coupled with a greater burden of diseases such as malaria could stretch the coping capacity of developing countries. This could, in turn, tip poor countries into fragile states and fragile states into failed states. Third, natural disasters and a changing landscape could contribute to destabilising and unregulated population movements (so-called 'climate refugees'), which could force previously separate groups to compete for the same dwindling resources. Fourth, receding sea and land ice could enable access to previously inaccessible resources such as oil and gas supplies in the Arctic and transit routes like the North–West Passage, triggering dispute over their ownership and control. Finally, salinisation, rising sea levels and mega droughts could make entire areas uninhabitable and in extreme cases jeopardise the very existence of small low-lying countries.[19]

Some of these climate-related threats take the form of rapid-onset events, such as extreme storms, while others are more gradual in their emergence, such as drought or changes in mean sea levels at current rates. As seen in such cases as the 1998 floods along the Yangtze River in Myanmar during Typhoon Nargus and in Louisiana due to Hurricane Katrina, rapid onset events hold the potential to cause immediate, large-scale population displacements and economic hardship. Any rapid expansion in the frequency, intensity and/or geographical extent of such events due to climate change would indeed hold great potential to cause significant breakdowns in security in many regions. Early environmental security and environmental refugee scholarship, and more recent 'worst-case' studies that have attracted headlines in the popular media,[20] have often drawn heavily on such scenarios, along with predictions of rapid escalation in sea levels.

However, the overall body of research looking at climate and security increasingly includes a wide range of approaches that take more nuanced assessments; assess the relative implications of rapid versus slow onset environmental changes; and considers as well the interactions of environmental processes with social, economic, political and

cultural ones.[21] Recent generations of environmental security research are increasingly coming together with climate change impacts research (and researchers), that are in turn influenced by a range of fields beyond political science and security studies, including food security, natural hazards, political ecology and international development theory.[22]

Vulnerability and adaptation

In climate change impacts research, the implications of climate change for human well-being are typically described and analysed in terms of *vulnerability*.[23] Vulnerability at its simplest can be seen as the potential for loss or harm due to some external stress.[24] Climate change researchers consider vulnerability to be a function of the sensitivity to change of the unit of study (the system, population, region, etc.); the climatic conditions and consequent biophysical changes to which that unit is and is likely to be exposed; and the capacity of the unit to adapt to or cope with the expected changes.[25] Vulnerability differs across households, communities and regions, as the fundamental components of vulnerability differ significantly over space and time.[26]

Adaptation in this context takes place through adjustments to reduce vulnerability or enhance resilience to observed or expected changes in climate, and involves changes in processes, perceptions, practices and functions.[27] Adaptation may be initiated at a variety of scales, from institutionally-driven policies and programmes at national or sub-national levels to household-level adjustments and risk management decisions.[28] The capacity to adapt is affected by a range of interacting social, economic, political and environmental processes, many of which may have little or nothing to do with climate processes.[29]

The identification of security risks and the prevention of conflict due to the impacts of climate change can therefore be considered strongly linked to the identification of regions or populations that are vulnerable to climate change because of inadequate adaptive capacity.[30] Expanding climate change adaptation research to include insecurity and conflict issues (or vice versa, to incorporate knowledge of climate change adaptation processes in security analyses) does not require a great analytical or conceptual stretch. As has been recognised in the environment and security literature, vulnerability to climate stress and violent conflicts share many of the same structural determinants: poverty, weak governance, population growth, fractured social structures and resource scarcity. The extent to which climate change may reinforce or amplify the potential for violent conflict

in any given region (i.e. to become a 'threat multiplier' or to alter the intensity of existing threat multipliers) will depend upon the degree to which adaptive capacity can moderate the vulnerability of that region's population.

The importance of adaptation in understanding and assessing vulnerability to climate change was demonstrated vividly by Easterling et al. in what became known as 'smart farmer–dumb farmer' scenarios.[31] In that project, the authors conducted crop-yield models for the Midwestern US under various climate change scenarios, using techniques that were and are commonly used for that type of work. What they found was that their model outputs for corn and other key food crops could be made to forecast future increases in yields or drastic declines in yields using exactly the same climatic data, but by varying their assumptions made about farmer behaviour. For example, in their 'dumb farmer scenario', they assumed that farmers neither recognised changes in climatic conditions as they occurred nor took any steps to adapt to changes in prevailing conditions: unsurprisingly, future crop yields fell significantly under this scenario. In their 'smart farmer' scenario, farmers were assumed not only to recognise changes in climatic conditions, but were also assumed to have almost clairvoyant powers in selecting the appropriate adaptive response each year. Again not surprisingly, crop yields were forecasted to rise even under challenging climatic conditions under this scenario. In other words, the reliability of future climate change scenario models requires not only getting good forecasts of future climatic conditions, it also requires a sophisticated understanding of adaptation processes and how adaptive capacity is built (or eroded).

Climate change adaptation researchers have shown that vulnerability is often created or magnified by a host of non-climatic forces and stresses at multiple scales. As a consequence, any number of potential opportunities exist for households, communities, governments and international organisations to act in anticipation of or in response to adverse climatic conditions and events.[32]

This does not, however, mean that human populations can adapt themselves out of any environmental change, climate-related or otherwise. One of the great unknowns and great worries in climate change research is that of the non-linear, abrupt change or 'climate surprise'.[33] Non-linear changes in atmospheric and/or oceanic processes that produce entirely new conditions at regional or local levels may indeed have catastrophic impacts for vulnerable populations. For example, it is difficult to believe that abrupt rises in sea level, the reversal of the Gulf Stream or other worst-case climate change outcomes could occur without causing wide-scale social and economic upheaval. In such scenarios,

the types of adaptation currently employed by human societies would likely be, at most, inadequate.

The manifestations of future climate believed most likely to occur by the Intergovernmental Panel on Climate Change (IPCC) represent for the most part exacerbations of existing climatic conditions and events to which human societies already adapt.[34] And yet, much of the current popular discussion of the implications of climate change focuses on non-linear changes/worst-case scenarios, in which the role of adaptation is minimal. For example, it is currently fashionable in popular scientific literature to point to collapses of the Greenland Norse colonies in the eleventh century, the Classical Mayan Empire and the Easter Island 'mystery' as cases contemporary civilization must learn from in order to avoid our own collapse.[35] Historical analogues are indeed useful tools from which to infer lessons about future impacts of climate change,[36] but there also exist many cases showing that extreme climatic conditions or serious environmental degradation do not always lead to societal collapse or violent conflict. Populations on the North American Great Plains experienced tremendous hardship, economic recession and large-scale out-migration during the 1930s as a result of the combination of prolonged drought, poor land-management practices, a slump in commodity prices, global economic recession and agricultural restructuring.[37] While that period has been described as 'the worst hard time' and 'the winter years', Great Plains society did not 'collapse' in the way the aforementioned historical analogues did, let alone in the way Kaplan's hypothesis would suggest.[38]

The simple point is that human adaptive behaviour, and in particular the availability and implementation of responses to adapt to stressful climatic conditions and take advantage of favourable ones, is and will be a critical determinant of the eventual impacts of climate change on human well-being.

Climate change and security in Africa

The necessity of adapting to extreme climatic conditions is not new to Africans, particularly residents of the Sahelian region. Climate variability in that region, which has always been significant by any standard, appears to have become particularly pronounced in the twentieth century.[39] A period of unusually high rainfall from the 1930s to the 1950s was followed by extended drought for the next three decades. Mean annual rainfall and

runoff dropped by as much as 30 per cent—with devastating effects on local populations and livelihoods. The spatial extent of arid and semi-arid areas within the region has been expanding steadily in recent decades, likely through a combination of drought and intensification of land use.[40] Relative to other parts of the world, a high proportion of the population is engaged in agriculture and pastoralism. The livelihoods of dryland producers who lack access to irrigation are particularly sensitive to fluctuations in precipitation.[41] Researchers have warned that should climate change exacerbate current conditions, food production in the region could decline and the range of infectious diseases could spread.[42]

The extent to which current drought conditions are attributable to anthropogenic climate change, or how future climate change may become manifest, is open for debate. Climate modelling for West Africa is generally less developed than for other parts of the world, and there is a considerable degree of variation in their projections.[43] There is a general understanding that the region will continue on a trend toward higher average annual temperatures, but models provide conflicting information as to the direction of future precipitation trends and patterns for West Africa, and existing models do not sufficiently capture the feedback effects of land degradation on local precipitation regimes.[44] In other words, the impacts of anthropogenic climate change on West Africa at present and in the future are very much uncertain.

This has not stopped outsiders from attributing the Darfur conflict to anthropogenic climate change-related drought.[45] The logic there is that drought-related scarcity created competition for land, water and food resources between rival groups of pastoralists and sedentary agriculturalists in Sudan. While such elements may indeed have been part of the chain of events that preceded the violence, great caution should be taken before assuming that violence was an automatic outcome of the drought.[46] Drought-related scarcities occur across Sudano-Sahelian Africa on a frequent basis, but do not trigger the violence and bloodshed being witnessed presently in Darfur. In the case of Darfur, the Government of Sudan is widely accused of fuelling this dynamic by providing weapons and tactical assistance to groups it supports in that conflict.[47] In other words, the critical reason for conditions in Darfur today being such as they are is not drought, but rather the stance of the Sudanese Government.[48]

The Darfur case provides just one example of the Neo-Malthusian logic that can sometimes colour outsiders' analyses of the security implications of environmental stresses in West Africa and give credence to views of that region's future, such as those of Kaplan,

which many Africans find unnecessarily deterministic and disproportionately negative.[49] Receiving far less attention is research indicating that in many parts of Africa traditional and informal local institutions have evolved to resolve resource-based conflicts in ways that diffuse violence and prioritise the conservation of critical resources.[50] In a close analysis of drought-related scarcities that might arise due to climate change in the Nigerian Sahel, Nyong et al. showed that sophisticated local institutional arrangements exist to manage scarce water resources, which have the ability to minimise the potential for resource-related conflicts and violence so long as they are supported and not undermined by state authorities.[51] Their research also provides evidence that that there is no automatic tendency toward disorder when West African populations are confronted with severe environmental stresses.

Climate change and security in West Africa: evidence from research

In a project that engaged policy-makers and stakeholders in Ghana and Burkina Faso in analysing and scenario-planning for future climate change risks, Brown (with Crawford) found that climate change could affect national and regional security, but only in the worst of cases would the outcomes likely tend toward the violence and disorder suggested by prevailing models of environment and security.[52] Their research was based on three future climate change scenarios—a best case, a medium case and a worst case, each of which drew from IPCC standard emissions scenarios—and was supplemented with information from Adger et al. and Stern.[53] Local experts from a variety of sectors (agronomists, hydrologists, security experts, representatives of civil society and government and so on) assessed the implications of each scenario on agriculture and food security, productive systems and exports, water, natural disasters and risk management, migration and health. That analysis resulted in six broad findings.

First, it is clear that Ghana and Burkina Faso already face considerable development challenges from existing economic, population and environmental stresses. The two countries share many development challenges. They have rapidly growing and urbanising populations and high rates of poverty. They are vulnerable to changes in temperature and rainfall. They have also been affected by episodes of violent conflict domestically and in neighbouring countries.

Second, it is equally evident that future climate change will likely make many current development challenges more complex and urgent. Both the Ghanaian and Burkinabe Governments have worked hard to identify sectors and regions that might be vulnerable to climate change. Ghana's national communication on climate change identified water, agricultural crops and coastal zones as sectors and areas particularly vulnerable. Burkina Faso's National Adaptation Programme of Action (NAPA) identified water, agriculture, stockbreeding and forestry/fisheries as the most vulnerable sectors.

Third, there are links between climate change and security in the region. There is anecdotal evidence that climate change has already been associated with conflict in West Africa. However, there is little research that has managed to construct an *empirical* link between climate change and conflict in the region (or, for that matter, anywhere else). That is not to say that such a link might not appear in future, only that the drivers of conflict and instability are complex.

Fourth, climate change could exacerbate existing latent tensions in Ghana and Burkina Faso. The research in Ghana identified five main areas where climate change could challenge political and economic stability: managing the North–South divide; the division of water between energy in the South and agriculture in the North; the management of regional water sources; instability on Ghana's border; and economic stability if cocoa production ceases to be viable. Four main challenges face Burkina Faso: food security; the availability of water; relations between pastoral and agricultural communities; and the management of migration (both to urban areas and regionally).

Fifth, only in the extreme scenarios does climate change start to become a *determining* factor in future economic and political instability. Climate change in the region is clearly one of many serious development issues that developing countries will have to grapple with. It is straightforward to see how climate change might be a somewhat amorphous *contributory* factor that exacerbates a number of existing problems. Under specific external conditions (poor governance, recession, ethnic tensions and so on) these problems could undermine economic and political stability. But, generally, it was not until the worst-case scenarios that the local experts felt that impacts of climate change could themselves present *deterministic* factors in future violent conflict.

Lastly, there is a risk that some key development concerns might be forgotten in the donor rush to 'do something' about climate change adaptation. Ghana and Burkina Faso are faced with a number of pressing challenges that are only tangentially related to climate change, if at all: growing population, rapid urbanisation and the need to adjust to a swiftly

globalising world. The projected impacts of climate change need to be examined within the context of other factors in the region and projects designed to help countries adapt to the impacts of climate change need to focus on the full range of development problems affecting countries.

Such findings represent a significant early step in employing a vulnerability-based approach to assessing the security implications of climate change for West Africa. While by no means definitive, it suggests the importance of revisiting existing, deterministic views of the relationship between environmental changes and security in that region, and in particular giving weight to the importance of adaptive capacity as a critical influence on the future well-being and stability of West African societies.

Conclusions

The recent focus on the 'security' implications of climate change has been tremendously effective at raising the profile of climate change as an issue of international importance. However, it is clear that the picture is nuanced and the relationships are not necessarily linear.

The projected impacts of climate change for West Africa and many other regions do indeed hold the potential to reduce the reliability of food and water supplies; to increase the frequency and severity of droughts and storms; and to exacerbate flooding in low-lying coastal areas. In turn, livelihoods *may* be undermined, key resources *may* become scarcer and violent conflict *may* result. However, we should be extremely cautious before assuming that a straight-line progression from scarcity to conflict *will* ensue. This is because the question of whether climate change helps tip fragile states into conditions of violence and conflict will be heavily influenced not only by the nature of the biophysical impacts of climate change, but also by a given area's susceptibility to conflict and the capacity of the population to adapt—factors that are determined in the first instance by non-climatic processes.

Fifteen years ago Kaplan predicted that climate change would interact with non-climatic stressors to create conditions of anarchy in West Africa, conditions that would quickly follow in other regions. While many still hold this view, it is far from inevitable. Evidence from relevant academic and public policy literature suggests there are two broad ways in which non-African states and organisations can help prevent such an outcome: by

contributing to the building of adaptive capacity in developing countries and by mitigating the emissions of greenhouse gases, the global accumulation of which originates disproportionately from developed nations. In practical terms, building adaptive capacity entails improving development assistance funding, controlling and reversing the spread of malaria, HIV and other diseases, using diplomacy and liberal trade policies to reinforce responsible governments in the region and accelerating the process of debt relief.

It also requires the international community to honour their commitments to the United Nations Framework Convention on Climate Change (UNFCCC), in which signatories have pledged to reduce the dangerous accumulation of anthropogenic greenhouse gases. Speaking grandly about the security risks of climate change while doing nothing to address its root causes is rightly seen in developing nations as simple hypocrisy, one example being the G8 countries' 2008 promise to halve their greenhouse gas emissions by 2050, which has been scoffed at by developing countries as an 'empty slogan'.[54]

We recognise that only one of these prescriptions refers specifically to climate change, and that is our very point. Avoiding the potential destabilisation of states in developing regions by climate change will require building adaptive capacity at all scales; will involve increased partnerships across regions; and will require governments and policy-makers to stop treating environment, economy, development, security and so forth as policy-making silos. The specific details of how to build the necessary capacity will vary from one place to another, and will require new resources and new thinking, commodities that are often in short supply.

Adaptive capacity-building clearly needs to be integrated within wider plans for development assistance, and the additional costs for that adaptation need to be funded with 'new money' so as not to undercut development priorities elsewhere. If designed and implemented carefully, adaptation could then help to address some of the key natural resource issues that could become contentious as a result of climate change (food security, water allocation and so on).

As a first step, it will be useful to re-channel traditional, deterministic thinking on the relationship between environment and conflict to better develop analyses that focus on identifying the key issues of concern from the perspective of local populations at risk. In the language of climate change impacts research, this means an increased emphasis on bottom-up, vulnerability-based research that engages local stakeholders and incorporates their knowledge and experience in traditional forms of conflict management and resolution. The approach to research described in section three is hardly innovative, and

yet it is done far too infrequently and captures far less attention than the types of top-down prognoses of which 'The Coming Anarchy' is only one example.

Climate variability has long been an important influence on livelihoods, well-being and political stability in West Africa and many other developing regions. Anthropogenic climate change will ensure that this will continue in the future. Marrying climate change to security threats makes for engaging and potentially galvanising political rhetoric, but it is clear from research and available evidence that significant work needs to be done to develop more sophisticated and systematic understandings of the relationship, so that rhetoric may give way to practical tools and analyses.

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