

The Environment and Conflict in the Rwandan Genocide

Stephen Brosha

In the years following the violence that shook Rwanda and the world in 1994, there have been many attempts to explain, or at least understand, the nature of the human tragedy known as the Rwandan genocide. Most accounts describe how two rival ethnic groups, the Hutu and the Tutsi, were engaged in a bitter dispute culminating in 1994. During a period of less than three months, widespread torture and brutality resulted in 500,000 to 800,000 (mainly Tutsi) deaths.[1] After over three years of civil war following an invasion of mainly Tutsi refugees from neighbouring Burundi, a series of negotiations resulted in the adoption of the Arusha accord, which called for the eventual sharing of power between the invaders (known as the Rwandan Patriotic Front or RPF) and the former regime of Hutu President Juvénal Habyarimana, and his party, the Movement for Democracy and Development (MRND). The widespread killings, mainly committed by the *interahamwe*, a group of Hutu extremist militias, began after the plane carrying President Habyarimana was shot down on the night of April 6, 1994. In the months that followed, the international community essentially turned a blind eye to the bloody massacre that was to unfold in the Rwandan anarchy.

It seems no overstatement to portray the Rwandan genocide of 1994 as a “failure of humanity,” to use the words of the commander of the United Nations

Assistance Mission for Rwanda (UNAMIR), Canadian General Roméo Dallaire.[2] There is a distinct danger, however, of oversimplifying Rwanda as a case of ethno-tribal conflict in remote Africa. Though it may be easier to accept as somehow being “unavoidable” if left in ethnic terms – as if to somehow vindicate the global failure to stop it from occurring – the international community has a responsibility to do its best to *learn* from the Rwandan case by understanding the various factors that led to the humanitarian crisis of 1994. In particular, there is compelling evidence to suggest that a number of environmental factors, especially population and land pressure coupled with unsustainable agricultural practices, played a key role in allowing the conflict in 1994 to arise and evolve as it did. This is not to say that such environmental problems *caused* the genocide in and of themselves, but their role was anything but trivial.

This paper explores the manners in which environmental stresses set the stage for violence in Rwanda, both directly and indirectly in the years leading up to the genocide. Building upon earlier research of other scholars, Rwanda’s decades-long build-up of land and resource scarcity is analyzed in historical and contemporary context. The shift from traditional agricultural practices to less sustainable alternatives ultimately helped to trigger the violence in 1994, will be highlighted.[3] By April

of 1994, such unsustainable practices had created increased tensions in communities throughout Rwanda and eroded the capacity of Rwandan society and government to respond to crises, thereby giving the Rwandan genocide an unmistakable environmental component. Indeed, it is becoming clear that the Rwandan genocide cannot be properly understood without critically considering the role of the environment.

The Environmental Security Approach

Since the mid-1980s, a growing number of scholars have sought to better understand the role the environment plays in international politics. Recognizing the rising scale and severity of environmental problems across the globe, influential thinkers such as Robert Kaplan and Thomas Homer-Dixon have argued that environmental degradation and other issues related to the scarcity of renewable resources will be the root of serious violent conflict in coming years.[4] This new paradigm, which seeks out links between the environment and security, attempts to extend beyond viewing environmental problems simply as “global issues” requiring United Nations (UN) conferences and agreements in order to effect change. Rather, the emerging field of environmental security examines how environmental problems that exist at the local level interact with the global to produce instability and conflict. Environmental issues, one must remember, have “interpretations, implications and mitigations not only at the global level but also at national and local scales,” which is aptly demonstrated by the Rwandan case.[5] Further, as Bruce Jones summarizes, “social conditions, such as poverty, environmental degradation, land and

population density, economic collapse—are all fuel for history’s fires.”[6] In Rwanda, many such factors converged to weaken the resilience of Rwanda’s ecological-political system, creating conditions that would later facilitate human tragedy.[7]

The Ethnic Factor

As previously mentioned, the Rwandan genocide is traditionally described primarily in terms of the ethnic nature of the conflict. Curiously, however, the Hutu and Tutsi “were not tribes, for the people shared the same religion, told the same ancestral stories, and spoke the same language, Kinyarwanda.”[8] In fact, there is very little physiological difference between those described as either “Hutu” or “Tutsi,” but what is a fact, is that the Hutu/Tutsi distinction played a key role in the evolution of Rwandan society in the twentieth century. Indeed, both the German and then Belgian colonial authorities used and furthered the pre-existing “ethnic” division to consolidate their hold on power, and the events leading up to the 1994 violence seem to differ little from the colonial past.[9] Three Rwandan scholars argue in their study linking land scarcity and distribution to the genocide, that ethnicity was at most a “cover” for competition over control of scarce land.[10] To most Rwandan citizens prior to 1994, ethnic differences mattered little, and ethnic intermarriage was common.[11] This is not to say that tensions did not exist, for they certainly did, but the violence of 1994 shows that there were other factors at play. Perhaps a more realistic view of the role of ethnicity in Rwanda would be that “severe economic, demographic, and environmental pressures on Rwandan society unleashed local grievances, while extremist forces among the

Hutu *manipulated* ethnic identities and resorted to large scale violence.”[12]

A Simple Malthusian Trap?

While the majority of explanations of the Rwandan genocide follow the pattern loosely outlined above, most make at least a cursory reference to the role of environmental and demographic pressures in contributing to the breakdown of social order in Rwanda. By the end of the 1980s, Rwanda was among the poorest nations on earth, and had the highest population density in Africa.[13] According to the perspective of Thomas Malthus, who in 1798 wrote his highly influential work *An Essay on the Principle of Population*, such a situation as that in Rwanda should be seen as a recipe for disaster. Malthus argued that food production will fail to keep pace with population growth, dooming the world to crisis. He believed that “positive checks,” defined as readjustments in population due to disease, famine, war, and other means, will always ensure that populations do not go over the carrying capacity of their resource base.[14] Over time, Malthus’ theory has been largely proven wrong. Despite calamitous predictions to the contrary, population has continued to increase relatively unabated in the world. That is, although Malthus provides important insights regarding the potential limits to what the environment can withstand, there are several problems with the basic Malthusian thesis. It does not take into account the ability of societies to *adapt* to increase carrying capacity and avoid crisis, through technological advances or other means. Therefore, while Malthus is useful as an introduction to how environmental stresses might have played a role in Rwanda, the simple fact of increasing

population densities does not explain why the country’s response was so brutal and widespread.

The Development of Rwanda’s Ecological Crisis

In order to discover the role of environmental pressures in fuelling the events of 1994, one must go beyond Malthus, and examine the way in which environmental *practices* brought Rwanda to the breaking point. To do so, the most appropriate place to begin is by analysing the agricultural sector of the country. As Valerie Percival and Thomas Homer-Dixon note, “Rwanda’s ecosystem is extremely diverse, which makes it difficult to generalize about its vulnerability to population pressures and resource degradation.”[15] The problem with Rwanda’s ecosystem, however, lies not in its natural *diversity*; in fact, what made the system so vulnerable to stresses by the 1990s was the lack of *diversification* in its agricultural sector. That is, while Rwanda’s diversity would have theoretically lend itself to resilience (at least in comparison with other countries in sub-Saharan Africa), human agricultural practices all but obliterated any potential strength. In 1969, when Richard Nyrop’s research team from the American University in Washington, D.C. completed the analysis *Rwanda: A Country Study*, the environmental dilemma was becoming clear:

The country’s diverse climate, soil, and topography provide the potential for productive and varied agriculture. Fulfillment of this potential is thwarted, however, by the concomitant problems of extremely high population density on existing arable land, increasing soil erosion, and depletion of soil fertility.[16]

Upon close study of the available sources dating back several decades, there have been signs of Rwanda's eventual environmental catastrophe for a long period; it was just a matter of time until the tipping point was reached.

In 1948, for example, a UN mission traveling to Rwanda and Burundi (then officially known as Ruanda-Burundi) established, that in light of high and increasing population density, along with soil erosion and regular drought, "the basic problem was how to feed all the people."^[17] With the highest population density in Africa, even in 1969, at 360 inhabitants per square mile, coupled with food crop production that failed to keep pace with the rapid population growth, Rwanda's future prospects were grim.^[18] Some have argued that because two earlier cases of Hutu-Tutsi violence (in 1959-1963 and 1973) occurred during periods of "high growth of food production per capita and the absence of famine," they could not be explained by hunger or other environmental factors.^[19] This line of reasoning fails to take into account that those earlier cases of violence were much more limited in scale, with a more concentrated and radical group of people carrying out the vast majority of violent actions.^[20] Furthermore, the evidence clearly shows that population and resource pressures were quickly coming to a head even during the 1960s and 1970s, precisely when these previous outbreaks of violence took place.

The genocide of 1994 differentiated from these earlier cases of hostility, perhaps most clearly in the extent to which Rwandans participated in the violence. According to Central News Network (CNN), as many as 600,000 people took part in the 1994 genocide; however, this cannot be fully confirmed.^[21] Environmental

considerations were especially strong incentives among the masses, who, unlike the elite, profoundly felt the effects of land and resource scarcity. In Rwanda, a country in which the agricultural sector is vastly predominant, with very low levels of urbanization, most people depended on the land and its fruits for subsistence, so any threat to the environment could only be considered a threat to their very survival.^[22] Fittingly, Johan Pottier in 1986 described the Rwandan agricultural sector as a system in decline, warning that "the likelihood of a major catastrophe in the near future must not be dismissed lightly."^[23]

Local Sustainability Strategies become Untenable

Over the years, Rwandan farmers, like their counterparts around the world, have developed local strategies for interacting with their environment in a manner that (in their experience and in that of their ancestors) best ensures their survival. Not to romanticize the farmer's place in world history, but it is logical to conclude that the vast majority of farmers are interested in sustaining themselves not only for the short term. Instead they seek to engage in sustainable agricultural practices so as to best assure their long-term survival and prosperity. In large measure, Rwandan farmers have acted in accordance with this pattern, at least until recent years. During the 1960s, for instance, "in many cases, a family will work several small scattered tracts of land, each at different elevations or having different characteristics, in order to reduce the risk of food shortages."^[24] As David Campbell notes, Rwandan farmers

build terraces, dig ditches and alter cropping patterns to reduce soil degradation and erosion; they plant

trees for fodder and tether animals to obtain manure to add to the soil; and they diversify their economies to include off-farm and non-farm income.[25]

Preferably, a farmer's land should be filled with a diverse array of crops, with regular rotations and ample time allotted for fallow (in order to facilitate the recovery of soil nutrients). However, "under increasing population pressure, such a complex system is difficult to maintain, and during the 1980s more and more families could no longer afford to let their plots rest and recover through periods of fallow." [26] Furthermore, local sustainability strategies have not been available to all, but have been socially stratified, meaning that most strategies were open only to certain more privileged sectors of Rwandan society.[27] Perhaps more alarmingly, the overall ability of farmers to utilize such strategies had become virtually nonexistent in the years leading up to 1994 as environmental pressures mounted.

It is important to recognize that the blame for pursuing non-sustainable practices in the wake of increasing population pressures and resource scarcity should not be placed firmly on the shoulders of those farmers who "abandoned" the strategies they knew would work. One reason farmers began to use short-term strategies, such as farming on the steepest slopes (which were vulnerable to soil erosion), was the imminence of their concerns for survival. Another reason involves both the central government of Rwanda and the international community as a whole. Recognizing how food production was not keeping up with rapid population growth,

The government encouraged crop production in the river valleys, the

alternative source of grazing for livestock. The role of livestock as a source of manure essential to maintaining the soil fertility was not recognized by the central government, yet it was a critical component of local strategies.[28]

With this top-down "solution," which is but one of many similar examples, the Rwandan government did little to ensure that local conditions were properly taken into account in their attempts to solve Rwanda's population crisis. Thus, the invaluable knowledge of farmers who had been getting by for years was more or less ignored.

Coffee and the Decay of Rwanda's Resilience

Throughout Rwanda's attempts to ameliorate its position in the world economy, its path has been fraught with obstacles, and the result has more often than not been devastating for the country's ecological and political stability. This phenomenon can be illuminated within the context of the long and tenuous relationship between the Rwandan economy and its primary resource, coffee. Since the colonization of Rwanda by the Germans, who had been eager to find a way to extract funds from their new colonial holding, coffee has been cultivated as the principal cash crop in Rwanda.[29] In effect, Rwanda's economy has been "almost exclusively" built around coffee and the other main cash crop in Rwanda—which was also introduced by colonial authorities—tea.[30] The almost singular focus on the former, though, was so ingrained that by the 1980s, 75 per cent of Rwanda's export earnings came from the coffee crop.[31]

Though coffee provided the Rwandan government and economy with a source of revenue, there was obvious danger in concentrating so much on a

single crop. Not only did it leave the Rwandan economy vulnerable to the unstable world coffee market; it also had dire consequences for Rwanda's agricultural sector. Moreover, throughout the 1980s, "foreign lenders had encouraged Rwanda to *step up* its cultivation of coffee for export as a way to finance the rapidly rising foreign debt." [32] In Rwanda, the shift to a cash crop monoculture as the backbone of its agricultural economy significantly damaged the system's resilience. As the Rwandan economy became more market orientated in order to keep pace with global trends, many farmers found themselves pressured to find new sources of revenue, as opposed to their traditional focus on producing food for subsistence. As a result, they often—with their government's encouragement—shifted to cultivating more and more coffee as opposed to the traditional variety of food crops. Between 1982 and 1992, Rwanda's production of coffee doubled, from 19,800 to 38,824 metric tonnes, while in the same period, both millet and sorghum production was cut in half. [33] By doing so, the decreased biodiversity of their farm holdings left their crops more susceptible to disease. As well, fewer crop types meant less crop rotation, and fewer opportunities for the soil to replenish its nutrients. All in all, the Rwandan agricultural sector's over-reliance on coffee had the effect of placing the environmental system on the brink.

Within a short period of time, disaster struck. In June 1989, the International Coffee Agreement (ICA), which regulated and stabilized coffee prices around the globe, fell apart, resulting in a dramatic drop in world prices and devastating consequences for Rwanda. At the same time, Rwanda's coffee yields were falling significantly as

a result of low levels of rainfall and decreasing productivity of land due to decreased soil quality. [34] With few other crops to fall back on, such factors cannot be considered minor shocks to the economic system. Ultimately, "revenues decreased drastically and foreign earnings diminished by 50 per cent. Poverty increased. Very few countries had experienced such a rapid decline. Rwanda was a desperate case." [35]

On the Brink: Rwandan Agriculture in the Early 1990s

By the end of the 1980s, Rwanda's agricultural resource base had been decimated. In terms of croplands, forestry, and livestock, traditional coping strategies had given way to short-term thinking and survival instincts. Though the total amount of land being farmed actually increased by 50 per cent between 1970 and 1986, much of this expansion "involved marginal land with poor soil quality or inadequate rain." [36] As well, by the end of the decade half of all farming was taking place on steep slopes which hitherto would have been considered unfit for agriculture. [37] Consequently, Rwanda had experienced over a decade of declining land productivity. [38] As Luc Bonneux summarizes, the general situation in 1993 was such that

half of Rwanda's citizens were under 15 years of age. Less than 10% lived in cities; most were living 'up the hill', in fragile ecosystems that were fast eroding due to deforestation and unsustainable agriculture. Nevertheless, 40% of the gross domestic product was generated by agriculture, there being virtually no other industries in the country. [39]

As Bonneux suggests, the problem rested not only with unsustainable crop production. Though often separated rather arbitrarily for the purposes of discussion, it is more sensible to consider crop cultivation, livestock husbandry, and forestry as an interrelated entity. This separation may have been one of the reasons why policies emanating from the central government of Rwanda often appear myopic, and seem to have done little to address many pressing issues of the Rwandan ecological system as a whole.

Prior to the genocide of 1994, the Rwandan government made several attempts at agricultural and environmental reform, but they often suffered from unintended consequences precisely because of the artificial compartmentalization of agriculture, forestry, and animal husbandry. The government-sponsored conversion of pasture into cropland, for example, resulted in not only decreased livestock production, but also in the side effect of producing less manure to replenish soil fertility, which completes the circle back to crop cultivation.[40] In another example, “although the Rwandan government began a reforestation campaign [in the early 1990s], the tree usually planted was eucalyptus, which consumes large amounts of water and nutrients.”[41] Placed in the context of routine water shortage, and over-worked, nutrient-deficient soil, the consequences of this program were bound to be counterproductive.

Distribution and Demographics

The evidence demonstrating Rwanda’s environmental instability is compelling, however, the extent of the crisis (and, as a consequence, its potential to descend into violence) was heightened by the inequitable distribution of those

resources that were available to the Rwandan populace during the 1990s.[42] Paradoxically, “land pressure has resulted in declining overall production, but *increasing* agricultural production for individuals with favourable land and resource access.”[43] Given the drastic status of the *aggregate* figures regarding the state of Rwanda’s agricultural economy in the years leading up to the genocide of 1994, one is immediately drawn to the conclusion that the less privileged in Rwandan society—the masses that later participated in the violence to such a large extent—had more than a simple axe to grind.

Additionally, as Daniel Clay and Thomas Reardon have discovered, results of a nationwide random sample of farming households conducted in 1991 by Rwanda’s ministry of agriculture demonstrate that the *most* unsustainable behaviour was carried out most often by those with the smallest farms, as their concern for survival was even more pressing as the situation worsened.[44] Because small farmers were forced to “push their farms harder to make room for cash crops,” they consequently had lower shares of their land under fallow.[45] This is not to suggest that such farmers did not know better, but it is not difficult to perceive how they were pushed to the point of desperation in light of the pressures acting on them.

Aside from the environmentally-damaging agricultural practices noted above, poor Rwandan farmers also exacerbated the country’s demographic crisis by having *more* children to use as farm labourers, despite the obvious problems this posed for society at large. Unfortunately, “when asked about what children will need to do to survive in the absence of sufficient land

resources, the overwhelming response from parents is that children will just have to 'make do on their own'. "[46] There were certainly some perceived advantages of having an increased labour pool at the household level. However, having more children simply added perilously to the already rapid population growth of the most densely populated country in Africa. The fact that such high birthrates remained despite Rwanda's population pressures is not altogether surprising due to the prevalence of low income, low access to formal education and little knowledge of birth control amongst citizens in the country.

Conflict and the Environment: How Direct Were the Links?

Taken in sum, environmental pressures delivered a critical blow to Rwanda's resilience, rendering the country virtually unable to deal with environmental and other stresses in an effective and rational fashion. As time went on, the government proved its inability to deliver appropriate responses to the crisis in Rwanda's agricultural sector. Their incapacity is clearly demonstrated by the government's ill-fated campaigns geared toward deforestation that were run side-by-side with attempts to increase agricultural output *clearing forests* and draining marshes. [47] According to Percival and Homer Dixon, "the government's increasing inability to solve the country's problems created a crisis of legitimacy," partially setting the stage for the later descent into violence. [48] In their view, the weakening of government legitimacy was probably the clearest link between the environment and conflict in the Rwandan case. This sentiment is echoed by Bigagaza, Abong, and Mukarabuga, who arrive at the conclusion that

The multiple effects of economic decline, population pressure, structural adjustment policies (SAPs) and growing internal opposition weakened the government's legitimacy and its administrative ability, thus contributing to the conflict in Rwanda. [49]

Other research, though, suggests a much more direct link between environmental stresses and the descent into violence that shook Rwanda in 1994.

On the eve of the Rwandan genocide, two Belgian economists (Catherine André and Jean-Phillippe Platteau) were engaged in field work in the north-western area of the country documenting the evolution of land access rights and social relations in one Rwandan community. André spent a total of sixteen months in the community on two separate occasions in 1988 and 1993, developing close ties with the local inhabitants and interviewing members of most households in the area. During the time between her first and second visits, a number of striking changes had taken place. As population density in the area rose from 1,740 people per square mile in 1988 to 2,040 in 1993, there was not only a predictable drop in the amount of food that was available, but also "a noticeable increase in the inequality of land holdings...as well as an abrupt fall in the median size of owned farms." [50] To add to the problem, there was also a significant increase in the average number of inhabitants per household, largely due to the growing inability of young adults to marry and establish their own farms and households for want of land. By 1993, this phenomenon had reached such a point that not a single man in his early twenties lived independent of his parents, which would

have been unheard of just five short years earlier.[51]

In light of the growing land pressures, a familiar predicament soon developed around the question of how to feed all the people on so little land. As Jared Diamond notes,

the percentage of the population consuming less than 1,600 calories per day (i.e., what is considered below the famine level) was 9% in 1982, rising to 40% in 1990 and some unknown higher percentage thereafter.[52]

For many years, it had been necessary for people in this area of Rwanda to supplement their income—and more importantly, their caloric intake—with jobs that took them away from their farms because the average household obtained only seventy-seven per cent of its calorie needs from the farm.[53] As pressures mounted, however, even the opportunities for regular off-farm income decreased drastically, especially for those with the least to begin with. As a result, a growing number of people were pushed to the pursuit of short-term survival strategies. As André observed first-hand in 1993, “in this market, many land parcels are sold under duress conditions and purchased by people *with* regular non-agricultural incomes” which contributed to the already significant gulf between the haves and have-nots in this region of Rwanda.[54] Thus, in a very short time, Kanama’s Malthusian quandary coupled with its crisis of distribution meant that there were a large number of people on the edge of survival.

What is perhaps most gripping about André and Platteau’s study, is not their study of the perilous state of land pressures in the Kanama region. Rather, their study is unique because instead of

hypothesizing in an abstract fashion, it examines in very concrete terms the links between land, population, and environmental stresses and actual conflict. Noting a high incidence of all sorts of conflict within the study area, they proceeded to examine those cases of conflict in detail, discovering that the majority of such conflicts were rooted in land disputes.[55] Furthermore, they claim that a good number of these conflicts were not simply petty squabbles, but indeed resulted in (often quite serious) bouts of “sheer violence,” including everything from destruction of another’s property to physical assaults with machetes.[56] Not surprisingly, André and Platteau conclude that “collective security and peace seemed to be under severe threat at the time of our field study (as early as 1988).”[57]

For those interested in seeing the links between the environment and conflict, the André and Platteau study is uniquely revealing, and almost perfectly (yet tragically) timed. Following the genocide of 1994, curious to trace back the *actual* links between such land problems and the violence of 1994, the authors of the study went back to Kanama. In their opinion, “an unexpectedly clear picture emerges.”[58] In particular, people who (according to the previous survey data) were resented for their economic success were killed at a much higher rate than the general population. In addition, older land-holding males were also executed at an extraordinary rate, which lends much support to the notion that environmental stresses were inextricably linked to the events of 1994.[59] A study in another area of the country would have faced difficult obstacles to identify such direct links between the environment and conflict, due to the potential conflation of the ethnic roots to conflict and those

caused by environmental stresses. In Kanama, however, the population was ethnically homogenous, with every single inhabitant of the area being Hutu, except one woman who was a Tutsi.[60] For that reason, the ethnic hatred variable can be controlled in their naturalistic experiment, and other causes of the 1994 violence (that eventually killed over five per cent of the population of the area) must be identified.[61] Given the evidence André and Platteau have gathered, there seems little doubt that environmental factors played a role that was more than subsidiary. As they note in conclusion,

The 1994 events provided a unique opportunity to settle scores, or to reshuffle land properties, even among Hutu villagers.... It is not rare, even today, to hear Rwandans argue that a war is necessary to wipe out an excess of population and to bring numbers into line with available land resources.[62]

The Rwandan case does not demonstrate that there is a *necessary* link between environmental/population pressures and genocide; what becomes clear, though, is that such factors were most certainly at play both leading up to and during the events of 1994.

The Overall Assessment

There are, without question, a number of other salient factors that must be considered in order to arrive at a comprehensive understanding of what took place in Rwanda in 1994, for what reasons, and by whom. The object of this paper has been to give a thorough treatment of the environment's role as one of those contributing factors. Though some observers of the Rwandan situation have downplayed the ultimate role of resource and land scarcity as direct

triggers of the genocide of 1994, the evidence seems to suggest a different story. Percival and Homer-Dixon, for instance, suggested in 1995 that there was a lack of "conclusive evidence" that environmental stressors in fact motivated people to engage in violence.[63] Research that has been published recently, such as the in-depth study of André and Platteau, as well as the many accounts of the precursors to disaster that could be found in the agricultural data available in the years leading up to the genocide, imply much greater potency to the environmental aspects of the events of 1994.

Many nuanced accounts of the Rwandan genocide *do* make at least a passing reference to the country's environmental crisis that had developed by the early 1990s.[64] Unfortunately, the case is normally placed in simplistic Malthusian terms, which risks rendering the discussion of the true nature of the environmental role in the 1994 violence merely an "interesting side note" at best. Upon closer examination, environmental factors appear to have interacted on many levels to contribute both directly and indirectly to the genocide. By the late 1980s, unsustainable agricultural practices had become ubiquitous and almost unavoidable—often precisely *because* of government policies responding to the international market. The resulting blow to Rwanda's ecological and political resilience tolled the death knell for Rwanda's chances at being a success story in Africa. Furthermore, land and population pressures drove large segments of the Rwandan population to the point of utter desperation, the results of which became all too evident in 1994.

To be sure, as was apparent even before the genocide took place, the Rwandan case illustrates that

environmental sustainability and social and economic development can no longer be analyzed as separate phenomena but that the melding of these objectives is crucial.[65]

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Rather than waiting until disaster or calamity strikes, state leaders, NGOs, and the international community as a whole would be well advised to take the lessons of Rwanda's environmental catastrophe to heart.

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1. [16] Richard Nyrop et al., Ch.9, p. 120.
[17] Linda Melvern, 11.
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[23] Johan P. Pottier, "The Politics of Famine Prevention: Ecology, Regional Production and Food Complementarity in Western Rwanda," *African Affairs* 85.339 (1986): 215
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[27] David J. Campbell, "Conceptualizing Global Change," 5.
[28] David J. Campbell, "Conceptualizing Global Change," 4.
[29] Richard Nyrop et al., 10.
[30] Joint Evaluation of Emergency Assistance to Rwanda, 19.
[31] Linda Melvern, *A People Betrayed*, 40.
[32] Michael Renner, 120. (Emphasis added)
[33] FAOSTAT Data, 2006, <<http://faostat.fao.org>>.
[34] Bruce D. Jones, 27.
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[41] Valerie Percival and Thomas Homer-Dixon, "Environmental Scarcity and Violent Conflict."
[42] For a thorough treatment of this argument, see Gareth Austin, *The Effects of Government Policy on the Ethnic Distribution of Income and Wealth in Rwanda: A Review of Published Sources* (Washington, D.C.: Consultancy Report for the World Bank, 1996). Also consider Bigagaza, Abong, and Mukarabuga, "Land Scarcity," 52.
[43] Jean Bigagaza, Carolyn Abong, and Cecile Mukarubuga, "Land Scarcity," 51.
[44] Daniel C. Clay and Thomas Reardon, 14.
[45] Ibid.
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[47] Catherine André and Jean-Phillippe Platteau, "Land Relations

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[50] Catherine André and Jean-Phillippe Platteau, 8.

[51] *Ibid.*, 12.

[52] Jared Diamond, *Collapse: How Societies Choose to Fail or Succeed* (New York: Viking Press, 2005), 321.

[53] *Ibid.*

[54] Catherine André and Jean-Phillippe Platteau, 28. (Emphasis added)

[55] *Ibid.*, 30.

[56] *Ibid.*, 29.

[57] *Ibid.*, 37.

[58] *Ibid.*, 39.

[59] *Ibid.*, 40.

[60] Catherine André and Jean-Phillippe Platteau, 6. The woman, who was the owner of a large estate—therefore belonging to the socio-economic class of many Hutus who were resented by large segments of the population—was killed along with the rest of the Kanama victims of the 1994 genocide, the rest of whom were Hutu.

[61] *Ibid.*, 39.

[62] *Ibid.*, 47.

[63] Valerie Percival and Thomas Homer-Dixon, “Environmental Scarcity and Violent Conflict: The Case of Rwanda.”

[64] For example, Dallaire, *Shake Hands with the Devil: The Failure of Humanity in Rwanda*, and Gérard Prunier, *The Rwanda Crisis 1959-1994: History of a Genocide*, (London: Hurst & Co., 1995).

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