NEW PUBLICATIONS

Bare Branches: The Security Implications of Asia's Surplus Male Population

Valerie M. Hudson and Andrea M. den Boer
Cambridge, MA: MIT Press, 2004. 400 pages.

Reviewed by RICHARD P. CINCOTTA

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From Ultrasound to Insurgency

Although this review will challenge the authors' predictions, *Bare Branches: The Security Implications of Asia's Surplus Male Population* is an impressively researched work: it is provocative, path-breaking, and deserving of a place in the personal library of all those who consider demographic security issues relevant to contemporary society. Throughout the book, political scientists Valerie Hudson and Andrea den Boer do an admirable job of digging through vital statistics to show the nature and extent of imbalanced sex ratios at birth, assembling historical and contemporary evidence, and making the case that we should take seriously the reports—particularly from China and northern India—of generations approaching marriageable age with an uncommonly large proportion of men.

The authors' thesis is clear from the outset. A large demographic dominance of males, they contend, could directly unsettle Asia's political environment. These women-short generations are destined to cast off millions of "bare branches"—a pre-revolutionary Chinese expression that disdainfully describes young men who do not marry and build a family. In the past, Chinese officials looked upon bare branches with suspicion, portraying these young men as shiftless troublemakers. Because their behavior was not constrained by familial responsibilities and social obligations, bare branches could be easily recruited by dangerous political malcontents and anti-social subcultures, and then cultivated into a military force. On this point, Hudson and den Boer are unwavering: high sex ratios were dangerous in 19th century China, and they still are today.

I am not so certain. Within the authors' neatly forged chain between thesis and validation, I find two weak links. First, they assume that sex ratios at birth—and sometimes sex ratios of entire populations—represent the sex ratio that young marriageable men encounter. I contend that these ratios are not representative, which matters immensely. Second, Hudson and den Boer sift through history to identify the security dimension of these surplus bachelors. But I do not believe that in this case, the historic past is relevant to China or India's future.

Which Sex Ratio?

In *Bare Branches*, Hudson and den Boer convincingly link increases in the sex ratio[1] at birth in China and India (and several other countries) to son preference, expressed in the differences in male and female infant mortality, and
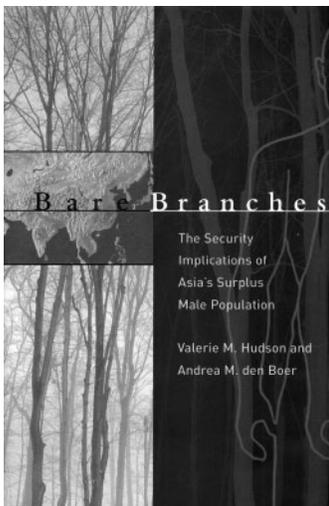
to the increasing practice of sex-selective abortion, which is facilitated by the spread of ultrasound technology. All nationwide surveys in China and India show some regional impact of son preference. A one-percent survey—while not the source of China's official population statistics—estimated the 1995 sex ratio at birth to be nearly 116 males per 100 females (China State Statistical Bureau, 1997). These data suggested an upward trend since 1980 across much of China, particularly in the southern provinces (the sex ratio in Hubei was recorded at 130, Jiangsu at 123, and Fujian at 122). While the 2001 census showed that India's countrywide sex ratio for children under age six had risen to only about 108, it also revealed that the northwestern states of Haryana and Punjab had reached ratios of 122 and 126, respectively.

Hudson and den Boer then connect high sex ratios at birth to the future number of marriageable women available for marriageable men. But is the sex ratio of same-age adults a proper estimate of the supply of mates? In many societies, men delay marriage to obtain skills and accumulate wealth, often wedding women more than five years their junior, which expands the available pool of marriage-age women. Because population has grown through most of history, each female age cohort is larger than the preceding male age cohort—and that makes the available pool of potential female mates exceedingly large.

Using a methodology similar to that used by Daniel Goodkind (2003), I estimate the sex ratio encountered by men preparing for marriage by assuming that it is equal to the number of males, ages 25 to 29, divided by the number of females, ages 20 to 24. I compare this marriage sex ratio to the apparent sex ratio, which is calculated as the number of males, ages 20 to 29, divided by the number of females in the same age group. The results of this comparative analysis (Chart 1) show that China's marriage sex ratio (an effect of age structure) has swung between extreme highs and lows over the past half-century. Although consistently higher than the expected sex ratio for that age group, the amplitude of China's apparent sex ratio has

Chart 1: Sex Ratios at Marriage in China, 1950–2004
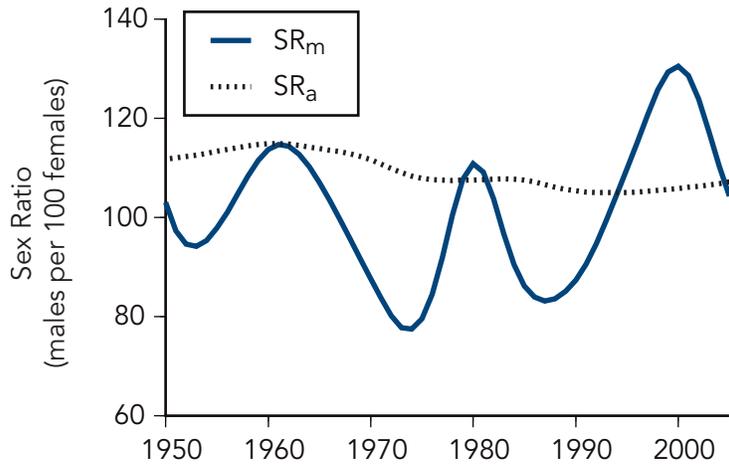
been overshadowed, so far, by these swings, which can be traced to episodes of high mortality (the first two swings) and to declines in fertility (the last swing). In fact, the marriage sex ratio hit low points (representing an abundance of marriage-age women) during the Cultural Revolution (1966-1976) and just before the 1989 Tiananmen Square protests. This suggests that China's "marriage market" is not as inflexible as the authors assert, and that the security effects of a male-skewed sex ratio, at the level currently observed among children (111, according to UN estimates), are insignificant in contemporary Chinese society.

The authors use prior studies of Indian districts that show a correlation between high sex ratios in the entire population and the murder rate. But these population sex ratios, I argue, reflect fertility and age structure (which are linked) as much as the sex ratio at marriageable age. Males typically outnumber females in childhood and adolescence; women tend to die prematurely in high-fertility societies, while women in older, low-fertility populations outlive men by about eight years. Analysis of 2005 data from the UN Population Division shows that median age and population sex ratio are correlated, as are the adult population's proportion of young adults (15-29 years) and population sex ratio.[2] These correlations are consistent with studies that have found that increased vio-

Note: Variation in rates of child survival and birth in China have caused the sex ratio of marriage-age men (ages 25-29 years) to marriage-age women (20-24), SR_m (or the "marriage sex ratio"), to swing widely while the "apparent sex ratio" of that age group (20-29 years), SR_a, has changed relatively slowly. This suggests that, in recent years, the relative supply of females at marriage age has been more sensitive to age structure than to sex ratios at birth. And, it calls into question expectations of violence from contemporary "bare branches."
Source: United Nations Population Division (2005).
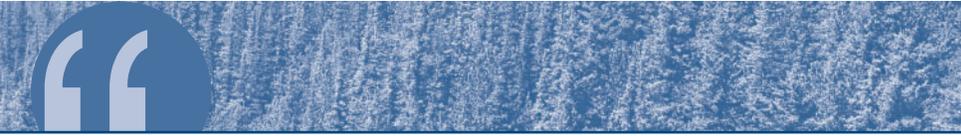
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> Hudson and den Boer turn to history for further validation, but it yields as much ambiguity as it does proof. Each historical case is confounded by other factors that may boost the risk of conflict.

lent crime often can be statistically explained by an increase in the proportion of young men in the population (Daly & Wilson, 1988).

Is History an Honest Guide?

The authors' presentation of evidence from contemporary comparative psychological and criminal behavior research is fairly strong. Psychological studies have generally found young men to be more aggressive under conditions of sustained sexual isolation, while parallel research has shown that men with mates and familial responsibilities are less likely to be involved in criminal behavior (see Laub et al., 1998).

Hudson and den Boer turn to history for further validation, but it yields as much ambiguity as it does proof. Each historical case is confounded by other factors that may boost the risk of conflict: the instabilities occur in volatile youthful populations (Moller, 1967/68; Mesquida & Wiener, 1999; Fuller, 1995; Goldstone, 1999; Cincotta et al., 2003); the rebels are members of large families and often high birth-order sons (Goldstone, 1991); the young men are landless or otherwise unemployed (Homer-Dixon & Blitt, 1998; Ohlsson, 2000); or there is a state power vacuum, as is often the case in frontier settlements and decaying empires.

No single case demonstrates that a high sex ratio, on its own, is enough to substantially lower the costs of recruiting men for risky coali-

tional violence. But this is exactly what the authors must show. In China—with which Hudson and den Boer are most concerned—nearly all of the destabilizing demographic, social, and economic conditions that accompanied high sex ratios in the historical case studies have since been systematically peeled away.

Most notably, China's age structure has matured. While the country's median age was likely younger than 18 throughout most of the 19th century, today the median age is 32 years old (United Nations Population Division, 2005). The proportion of young adults ages 15 to 29 years—a measure that has been shown to be positively related to a state's risk of civil conflict (Cincotta et al., 2003)—peaked in the mid-1980s at more than 43 percent. Today, it is 30 percent and falling. Job growth, which has been driven by the past decade's 8 percent annual increase in real GDP, surely outpaces the slowing growth of its working-age population (now at 1.3 percent annually).

Nor are young Chinese men and women still circumscribed by the sexual constraints and occupational limitations of pre-revolution China. Increased rates of divorce and remarriage, the removal of social stigma constraining widows and older women from marriage, declining social restrictions on premarital sexual activity, weakening class structure, bustling urban job markets, and the migration of young Chinese for education and work—all of these are likely to reduce the perception and impact of a high sex ratio by reducing the number of idle young men with low mobility or without familial or employment-related responsibilities.

Turning the Skew

From the first pages of *Bare Branches*, I was curious to see how the authors would navigate the tense politics surrounding sex-selected abortion. But Hudson and den Boer steer clear of this thorny debate. They point out that in China the most cost-effective solution is obvious: removing the one-child policy should substantially depress the demand for sex-selected abortion and could reduce mortality among infant girls.

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Dismantling India's ubiquitous and already out-lawed dowry system presents a more formidable policy challenge, however. The authors offer several recommendations, the most solid of which advises governments to improve the legal and social status of girls and women, which should reduce the costs of bearing girl children and increase the returns on investments in their health and education (even as technologies facilitating fetal sex determination and selection grow more affordable and available).[3]

Despite my criticisms, I highly recommend *Bare Branches*. Through their research and publications (see also Hudson & den Boer, 2002; den Boer & Hudson, 2004) the authors have sparked a vibrant debate that will undoubtedly claim a significant place in the literature on demographic security. Moreover, their work continues to draw much needed attention to the extent and persistence of discrimination against women.

Notes

1. Demographers assess the degree of numerical balance between human males and females using the "sex ratio," which is calculated as the number of males divided by the number of females, multiplied by 100. For reasons that Hudson and den Boer admit are still poorly understood, the normal sex ratio at birth for a large human population is typically around 105 (105 males per 100 females).

2. I used a two-tailed hypothesis to test statistical significance, where the critical value is F(DF= 184, 184). Both correlations are significant at $p < 0.01$. Six outliers, all of them Arabian Gulf countries, were omitted from the analysis because of the presence of an unusually large proportion of male workers in their populations.

3. New technologies are likely to come online; the authors note that companies in the developing world are seeking to license a technology for separating sperm carrying X or Y chromosomes.

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Collapse: How Societies Choose to Fail or Succeed

Jared Diamond
New York: Viking Penguin, 2004. 592 pages.

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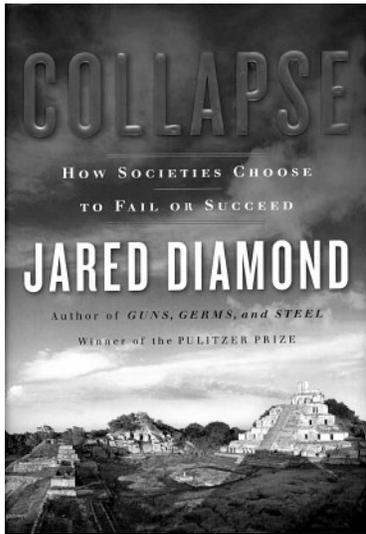
"This is the way the world ends / Not with a bang but a whimper."
—T.S. Eliot, "The Hollow Men"

Collapse: How Societies Choose to Fail or Succeed, Jared Diamond's hefty and challenging book, demonstrates that while popular history is replete with stories of conquered empires that ended with a bang, a number of civilizations collapsed under the weight of their own actions (or inactions) regarding their environment, and thus ended (perhaps literally) with T.S. Eliot's whimper. Diamond argues that the failures of the past provide lessons for today's societies; global prosperity and well-being require that we act on these lessons, so that the past does not become prologue.

Collapse has been widely reviewed in the press—even more widely discussed in the blogosphere—and Diamond has given a number of well-publicized speeches and interviews on its themes (including one published in last year's *ECSP Report*; see Diamond, 2004). So instead of offering a general review of the book, I will focus on some of the implications of Diamond's theses for today's policymakers and the informed public.

But first, a few comments on the book itself. Reading Diamond is always a pleasure, even when he is not writing about pleasant events. He writes well and entertainingly, and the amount of knowledge he can deploy to support his arguments is impressive, interesting, and often convincing. For example, instead of relying solely on academic studies for his chapters on the demise of the Easter Islanders and the Norse of Greenland, he visited the sites himself, which helps bring to life these long-past civilizations and the problems that caused them to fail.

While I enjoyed the book and admire what Diamond has accomplished, on balance he has probably done too much. At more than 500 pages, *Collapse* is a long read, even for the most committed. In chapter after chapter, Diamond makes his case and then piles on additional material that reconfirms an argument already well made. Less information might have been more convincing—in part because more people would have time to read the whole book.

Most valuable is Diamond's ability to make the past accessible and understandable, and then demonstrate its relevance to the present and future. Many of *Collapse's* critics argue that Diamond focuses on past civilizations that were uniquely vulnerable because they were island-based, or otherwise remote and resource-constrained. Therefore, according to these critics, these past experiences are irrelevant to today's world, which has the technology, science, and capital to deal with its problems. Some accuse Diamond of espousing "environmental determinism," a charge he rejects (page 302).

But these critics discount Diamond's opening chapter on the challenges facing today's

Montana. Diamond uses Montana's situation to illustrate that vulnerability is not unique to islands or drought-prone regions; even a seemingly prosperous state in the most affluent and technologically advanced nation in human history suffers from some of the same problems that undermined earlier civilizations. His review of four contemporary cases (Rwanda, the island of Hispaniola, China, and Australia) vividly demonstrates that the seeds of past "collapses" are very much present in today's world—and not only in the developing countries.

In the final chapter, Diamond declares that societies, in essence, choose to fail or succeed, and concludes that there is reason to be "cautiously optimistic." This optimism rests on his expectation that the seeds of collapse will not go completely unattended and that we will take sustainable steps to deal with them.

Lessons From *Collapse*

In the post-9/11 world, some in political and policy circles argue that security and terrorism must be our overriding concerns, making all other issues secondary. Diamond suggests that globalization and the interconnectedness of global systems require policymakers to take a broader view. To that end, policymakers should consider the following lessons drawn from *Collapse.*

Human impacts on the environment and other global systems have real-world consequences in the near term (e.g., for the war on terrorism). Failed states breed instability and insecurity well beyond their borders. Deforestation, one of the issues highlighted in *Collapse*, can affect state health and regional stability by undermining local livelihoods and creating conditions for long-term economic decline. For example, Charles Taylor's rape of Liberia's forests sustained several destabilizing insurgencies in West Africa and created conditions for continued instability in Liberia—and beyond. Had a forest certification scheme been in place, it would have been more difficult for Asian and European timber buyers to fund

Taylor at the outset. Therefore, international and regional agreements on such issues as forests, fisheries, and water pollution are not just "nice" things to do for the environment, they are required for development, prosperity, stability and, ultimately, security.

Environmental problems need to regain the attention and priority they enjoyed in development aid programs of the 1990s. *Collapse* makes a strong case that environmental and human impact issues played a role in Rwanda's genocide, and Diamond is not the first to identify the political, security, and human consequences of Haiti's devastated environment. Other countries, such as Afghanistan, Uganda, and Namibia, support the argument that the environment must be a key component of any sustainable development program. In addition, the growing body of evidence on the impacts of climate change, the pressure on fresh water supplies, and the steady destruction of forests by legal and illegal logging, to name only a few, show that aid programs must make the environment a priority if we are to meet development goals—and promote regional stability and global security in the process (see Millennium Ecosystem Assessment, 2005).

In Chapter 14, Diamond notes that societies can make bad decisions and fail for a variety of reasons, such as not anticipating or perceiving problems. Clearly, in a globalized world, policymakers need long-term analyses of environmental and human "megatrends" to help them both anticipate and identify problems. It is, therefore, distressing that while the National Intelligence Council's (NIC) 2000 report, *Global Trends 2015,* addressed some issues related to human impacts on the environment, the recently released *Mapping the Global Future: Project 2020* (NIC, 2004) essentially does not. The NIC and other security bodies should regularly examine the impact of environmental problems on development and stability in key countries and regions.

Having information is only part of the battle. *Collapse* also argues in Chapter 14 that societies can fail if they do not respond rationally as a problem develops. The depletion of fisheries

International and regional agreements on such issues as forests, fisheries, and water pollution are not just "nice" things to do for the environment, they are required for development, prosperity, stability and, ultimately, security.

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and the spread of persistent organic pollutants, for example, are known problems addressed by international and regional agreements. Climate change, on the other hand, is a known problem to which states have only partially responded. Not only has policy failed, but the public has also failed to insist that such known problems be addressed, not avoided.

The spread of democracy and the rule of law are essential to sustainably confront the human impact issues Diamond discusses (despite the unique example presented by the former Dominican dictator and environmentalist Joaquin Balaguer). Corruption is antithetical—and good governance is vital—to sustainable resource management and the regulation of human impacts on global environmental systems. But, as we have seen repeatedly, corruption is sure to occur when economic interests seek to exploit limited resources in the absence of transparency and strong legal systems.

Democracies tend to be both transparent and supportive of the rule of law. The United States has led the way in promoting the rule of law as an essential part of sustainable development, despite some developing countries' insistence that such issues are "political" and have no place in development discussions. However, developing countries' support for a global anti-corruption convention in 2003 indicates that the link between the rule of law and sustainable development is becoming more widely accepted. But more needs to be done, and in this regard, the Bush administration's broad efforts to promote international democratic reform could benefit the environment and help, in Diamond's words, societies choose to succeed.

Finally, the most fundamental step is one we all can take: individuals concerned about human impacts on the global environmental systems that sustain us must work steadily to increase the number of people who share those concerns. We must make the environment an important issue across the political and ideological spectra, by building inclusive coalitions, and, as Diamond points out in Chapter 15, working with—not

against—businesses and other economic interests. For example, the Marine Stewardship Council, an NGO-industry collaboration that promotes sustainable fisheries and sustainable fishing practices, is constructively contributing to both the economy and the environment. Broad-based support is essential, if politicians and policymakers are to overcome the daily pressure to provide only short-term responses to any problem—and if we are to avoid perpetuating "the tragedy of the commons."

Collapse is a big book, and not just in its size. It raises important issues, suggests some ways forward, and should increase our understanding of why we must sustainably address human impacts on the environment and other global systems, at all levels—local, national, and international. In *Collapse*, Diamond describes how past civilizations have ended with a whimper, not a bang. Let us hope that we can learn from, and act on, these lessons from the past, so that unlike in "The Hollow Men," no shadow will fall "Between the idea / And the reality."

Author's Note: *the views expressed are solely those of the author and do not reflect in any way the views of the U.S. government.*

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From Conflict to Sustainable Development: Assessment and Clean-up in Serbia and Montenegro (Final Report)

United Nations Environment Programme (UNEP)
Switzerland: UNEP, April 2004. 55 pages.

Desk Study on the Environment in Liberia

UNEP
Switzerland: UNEP, February 2004. 116 pages.

Reviewed by GREGORY D. FOSTER

In December 2001, the United Nations Environment Programme (UNEP) announced the formation of a major new activity, the Post-Conflict Assessment Unit (PCAU), based in Geneva. Building on the earlier success of UNEP's assessments in the Balkans, PCAU was established to investigate the environmental impacts of conflict and pre-existing chronic environmental problems in war-torn regions, integrate environmental considerations into post-conflict recovery and reconstruction, recommend strategic priorities for post-conflict cleanup and remediation, and catalyze and mobilize international support for post-conflict environmental projects.

UNEP Executive Director Klaus Toepfer, at an October 2004 Wilson Center Environmental Change and Security Program event, described PCAU as the first—and most visible—of UNEP's three pillars of environment and conflict work.[1] UNEP considers post-conflict environmental assessments vital tools for determining the environmental impacts of conflict and for providing clear recommendations for remediation. PCAU therefore seeks to demonstrate the linkages connecting environmental degradation, public health, and sustainable development to identify environmental risks and promote sustainable resource use.[2]

PCAU's 38 reports cover Afghanistan, Albania, Serbia-Montenegro, Macedonia, Iraq, Liberia, the Occupied Palestinian Territories,

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and the effects of depleted uranium (in Bosnia-Herzegovina, Serbia-Montenegro, and Kosovo). Exclusively descriptive and reportorial in tone, these reports follow no common format but are all clearly written, well-edited, and ably supplemented by photos and maps that add to their readability.[3] The reports reviewed here—on Serbia-Montenegro and Liberia—typify both the variety and the quality of PCAU's written products.

Pekka Haavisto (2005), the former head of PCAU, draws three general conclusions from the post-conflict assessments conducted to date. First, a military conflict always has negative consequences for the environment that must be addressed as soon as the situation allows. Second, environmental concerns are not stand-alone issues, but should be fully integrated into both short-term humanitarian work and long-term reconstruction and development. Third, post-conflict environmental work can build confidence and peace, bilaterally and regionally;

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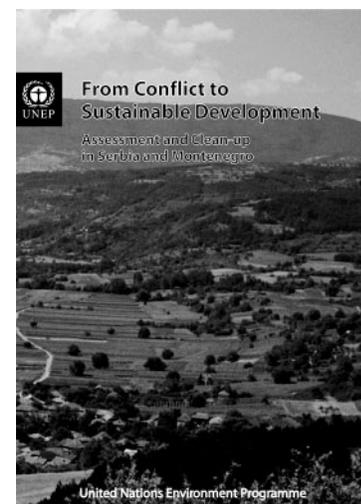
where other topics are too sensitive to discuss, the environment can often serve as an icebreaker.

Serbia-Montenegro

From March to June of 1999, following the failure of the Rambouillet peace process, NATO conducted air strikes within the then-Federal Republic of Yugoslavia (FRY). The intensity of the air strikes—particularly those targeting industrial and military facilities—fueled claims that the conflict had produced massive air, land, and water pollution, leading to an environmental disaster.

UNEP and the UN Centre for Human Settlements initiated a neutral, independent, scientific assessment of the environmental situation in the FRY, sending four expert missions to the area between July and October 1999.[4] Based on the missions' fieldwork, UNEP concluded that the conflict had not produced a generalized environmental catastrophe, but that more localized impacts—combined in some cases with a long-term legacy of poor environmental management—gave cause for concern. In particular, the environmental situation at four "hot spots" in Serbia was so severe that the report urged their cleanup on humanitarian grounds, recommending the following steps:

- Clean the wastewater canal to the Danube River and remove mercury from the ground in Pancevo;
- Decontaminate dioxin and polychlorinated biphenyl hot spots in Kragujevac;
- Protect drinking water wells in Novi Sad; and
- Reduce sulfur dioxide emissions from the copper mine in Bor.[5]

UNEP identified 27 cleanup projects for these 4 hot spots at a total estimated cost of $20 million, and eventually generated $12.5 million in contributions from 10 donor countries to support 22 of them. UNEP awarded nearly 400 contracts to perform this work, some 300 of which went to local companies or institutions, thereby building local capacity and generating local income and employment.

Before handing over responsibility for the cleanup program to environmental authorities in Serbia-Montenegro, UNEP and the local authorities jointly assessed the four original hot spots, along with environmental conditions at three additional industrial sites. The final assessment found that:[6]

- The clean-up program was a notable success, especially in light of limited funding and time constraints, and significantly reduced conflict-related impacts at the four hot spots:
  - At Pancevo, where more than half of available funds were spent, conflict-related concerns were significantly reduced, though important environmental problems remain;
  - At Novi Sad, the risk of serious contamination affecting drinking-water supplies was substantially reduced and conflict-related environmental impacts systematically monitored;
  - At Kragujevac, the environmental impacts of the conflict (high PCB concentrations at various sites throughout the Zastava industrial complex) were successfully mitigated; and
  - At Bor, conflict-related environmental effects were largely mitigated (PCB contamination at the mining and smelting complex's transformer station), but were minor compared to the wider, pre-existing environmental problems affecting the area.
- The clean-up program generally strengthened environmental management institutions and helped resume and strengthen international and regional environmental cooperation;
- Conflict-related impacts represented only some of the environmental and health challenges at most locations—several sites still suffered considerable environmental problems;
- Strengthening national and local environmental management capacities will require continuing efforts to integrate the environment into the national development agenda and to promote preventive and precautionary environmental management;

- Partnerships with donors, the wider international community, the UN system, and local counterparts and experts were fundamental to the program's success; and
- A faster start—with more immediate financial resources—would have produced even greater environmental benefits.

Liberia

Two missions to the Liberian capital of Monrovia met with stakeholders and collected data for UNEP's desk study following the Accra Peace Agreement of August 2003. As Pekka Haavisto points out in the report's introduction, the desk study is not a comprehensive environmental survey, but rather a rapid strategic assessment aimed at identifying the most urgent environmental issues for Liberia's post-conflict reconstruction.[7]

The report presents a disturbing litany of environmental stresses growing out of and contributing to Liberia's 14 years of civil war, including:

- The water supply systems in 10 urban areas outside Monrovia have completely collapsed, and only 26 percent of the population has access to safe drinking water;
- The sewage treatment plant in the capital, designed to treat waste water from 130,000 people, now treats waste water from 800,000;
- An estimated half a million people are living in temporary housing or refugee camps, often without adequate sanitation facilities;
- Household and commercial waste collection services in major towns and cities have mostly collapsed, and rubbish trucks, transfer stations, depots, and equipment have been looted, heavily damaged, or destroyed;
- The conflict left power plants, electricity substations, and transmission lines damaged and vandalized;
- Leaking oil storage facilities, alongside leaking pipelines and transformer fluids, threaten rivers and groundwater;
- As many as 99 percent of Liberians may now

> The PCAU, via efforts like those described in these reports, has already achieved considerable success in making environmental concerns more than a peacetime issue.

be dependent on charcoal and fuel wood for cooking and heating, further depleting the country's rich forest cover, which has declined to approximately 31 percent, a 7 percent decrease since 1990;
- Warring factions exploited and exported the country's rich timber resources to pay for arms and armies, which sharply increased the number of logging roads, thus accelerating the fragmentation of forest habitat, providing easier access for hunters and poachers, and increasing slash-and-burn agriculture; and
- Artisanal gold and diamond miners have cleared and excavated large areas of forest and river beds, as well as clogged and polluted rivers with suspended solids and harmful metals and cyanide.

These and other serious instances of degradation prompt Klaus Toepfer to note in the report's foreword:

The misuse of natural resources has not only been a source of conflict in Liberia and the wider region, but has also sustained it. Effective and strong management to promote the sustainable use of natural resources is central to preventing additional conflict in Liberia. For the long-suffering people of Liberia, many of whom have been displaced and separated from their families, this new era provides them with a chance for a better future. (page 6)

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To address these conditions, the report offers 60 recommendations that could serve as a template for environmental rehabilitation in any comparable situation. In addition to specific sectoral recommendations, the report proposes a number of more sweeping measures, including:

- Carry out comprehensive environmental assessments;
- Integrate environmental considerations into the reconstruction process;
- Create employment through the expansion of environmental protection;
- Improve environmental governance and international cooperation;
- Expand environmental information and awareness; and
- Develop and use creative financial mechanisms.

Conclusion

In a May 2004 address at the Wilson Center, Pekka Haavisto observed with frustration that governments seeking to recover from conflicts and negotiate peace rarely prioritize environmental concerns.[8] Yet the PCAU, via efforts like those described in these reports, has already achieved considerable success in making environmental concerns more than a peacetime issue, while donor interest, funding, and support have provided strong incentives for governments to undertake much-needed conservation and clean-up measures. Underscoring the intrinsic strategic importance of the environment, Haavisto emphasized that after a conflict, environmental conditions can either hinder recovery and development or provide an arena for negotiation and cooperation. "The post-conflict situation," he said, "is a unique opportunity to create something new."

Indeed, one hopes that thoroughly and systematically documenting the environmental costs of conflict may not only sensitize decision-makers to how environmental degradation may precipitate and nurture conflict, but also help prevent them from regarding violence as a fruitful strategic option in the first place. As Klaus

Toepfer (n.d.) has argued: "Environmental security, both for reducing the threats of war, and in successfully rehabilitating a country following conflict, must no longer be viewed as a luxury but… as a fundamental part of a long lasting peace policy."

Notes

1. The second pillar of UNEP's environment and conflict work is ENVSEC (the Environment and Security Initiative), the UNEP European regional office's partnership with the United Nations Development Programme and the Organization for Security and Cooperation in Europe. The third pillar is the Environment and Conflict Prevention Initiative led by UNEP's Division of Early Warning and Assessment. See event summary on ECSP's website at http://www.wilsoncenter.org/index.cfm?topic_id=1413&fuseaction=topics.event_summary&event_id=95111

2. For more information on PCAU's methodology, please see http://postconflict.unep.ch/about.htm

3. All of these reports are available on the unit's website, at http://postconflict.unep.ch/publications.htm

4. The first mission took soil, air, and groundwater samples at industrial sites in 10 locations. A second mission visited several sites along the Danube River, while the third investigated the conflict's consequences on biodiversity, especially in protected areas. Finally, an expert team working in Kosovo studied municipal administration, the regularization of housing and property rights, the development of a cadastral (land survey) information system, and environmental policy and institutions in the province.

5. These findings were complemented by subsequent field research on the environmental risks arising from the use of depleted uranium weapons during the conflict; see http://postconflict.unep.ch/publications.htm#du for more information.

6. A technical report (UNEP, 2004) supplements these findings with detailed assessments and appraises the institutional capacity at each of the seven sites. Additionally, it offers detailed recommendations for the country's industrial sector and local institutional capacities; see http://postconflict.unep.ch/publications/assessment.pdf

7. Other recent desk studies have reported on Iraq and the Occupied Palestinian Territories; see http://postconflict.unep.ch/publications.htm

8. See event summary on ECSP's website, at http://www.wilsoncenter.org/index.cfm?topic_id=1413&fuseaction=topics.event_summary&event_id=68772. See also Airhart (2003).

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Global Crises, Global Solutions

Bjørn Lomborg (Ed.)
Cambridge, UK: Cambridge University Press, 2004. 647 pages.

Reviewed by ROBERT COSTANZA

Global Crises: Unfortunately Unrecognized and Unsolved

Global Crises, Global Solutions is an unfortunate book. It begins with a good question: how should $50 billion (or some other large amount) of new foreign aid money be spent over the next four years to get the most "bang for the buck"? However, the method chosen to answer this question is fatally flawed, rendering the results useless, if not dangerous.

The flaws are apparent in the first 8 pages of the introductory chapter, which is the only section of this 647-page book written by its editor, Bjørn Lomborg. The fair and important question of how to prioritize our global challenges and opportunities certainly needs more serious attention. But Lomborg's method is problematic. First, he generated a list of 32 "general challenges facing humanity" by scouring UN publications (see Table 1). Even this initial step was not inclusive, because sustainability is not mentioned. The sustainability challenge is a core global problem, long recognized by the United Nations (see, e.g., World Commission on Environment and Development, 1987) so it is hard to imagine how a scan of UN publications missed it.

Another major flaw arises in the next step. Rather than circulating this list to a broad

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range of stakeholders for comment and review (as Lomborg acknowledges he could have done), he instead concluded that even though this effort might produce more "buy-in," it would take too long. It is ludicrous that he could not afford to devote another month or year to a process whose recommendations for spending billions on global problems he hoped would be taken seriously. Even a cursory glance at the initial list of problems would have identified the major omission mentioned above. Contrast this with the Intergovernmental Panel on Climate Change (2001) process or the Millennium Ecosystem Assessment's four-year, 1,300-participant process of scientific consensus building.[1]

Lomborg narrowed the original list of 32 challenges down to the 10 "found to hold the most promising opportunities" (page 4).

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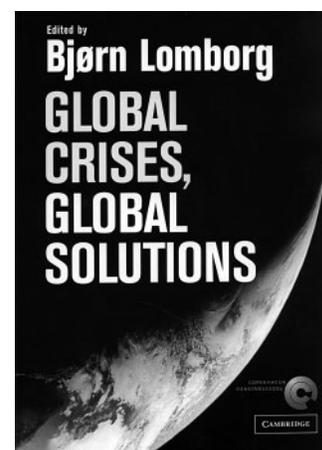
Table 1: Global Challenges in *Global Crises, Global Solutions*

The 32 Original Challenges Facing Humanity		The Final 10 Challenges Found to Hold the Most Promising Opportunities
Environment Air pollution Chemical pollution and hazardous waste Climate change Deforestation Depletion of the ozone layer Depletion of water resources Lack of energy Land degradation Loss of biodiversity Vulnerability to natural disasters **Economy** Digital divide Financial instability Lack of intellectual property rights Money laundering Subsidies and trade barriers Transport and infra-structure	**Governance** Arms proliferation Conflicts Corruption Lack of education Terrorism **Health and population** Drugs HIV/AIDS Human settlements Lack of people of working age Malaria Living conditions of children Living conditions of women Non-communicable diseases Undernutrition/hunger Unsafe water and lack of sanitation Vaccine-preventable diseases	Climate change Communicable diseases Conflicts and arms proliferation Access to education Financial instability Governance and corruption Malnutrition and hunger Migration Sanitation and access to clean water Subsidies and trade barriers

Found by whom? Eight like-minded economists who met for one week—hardly worthy of the name "Copenhagen consensus," considering the problems' magnitude.[2] The bias inherent in both of these initial winnowing steps is huge but never acknowledged. For example, while the initial list of 32 includes 10 environmental challenges, ranging from air pollution to deforestation, from lack of energy and water to climate change, the final list includes only one environmental entry: climate change.

Contrast this with Jared Diamond's (2004) list of the 12 most serious environmental problems facing past and future societies—problems that more often than not have led to the well-documented collapse of these histori-cal societies:

- Loss of habitat and ecosystem services;
- Overfishing;
- Loss of biodiversity;
- Soil erosion and degradation;
- Energy limits;
- Freshwater limits;
- Photosynthetic capacity limits;
- Toxic chemicals;
- Alien species introductions;
- Climate change;
- Population growth; and
- Human consumption levels.

While climate change is certainly a serious problem, and has contributed to several histori-

cal collapses—as Diamond and several others (Tainter, 1988; Yoffee & Cowgill, 1988; Ponting, 1991) have pointed out—the interplay of multiple factors is almost always more critical than a single one. Societies on the edge become brittle and lose resilience, making them more susceptible to the impacts of climate change as well as to other potential perturbations, such as political corruption, war, terrorism, or the inability to adapt to new circumstances.

Lomborg commissioned a background paper on each of the 10 challenges from "renowned economics specialists within each field" (page 5). These 10 papers, along with two "alternative perspectives" on each challenge, form the bulk of the book. Unfortunately, while presenting a slightly broader perspective than that of the original eight experts, these papers still draw from far too narrow a set. Despite this, most of the papers in the collection are well worth reading for what they are: statements of a particular position, based on a particular worldview, on a particular complex issue. Missing—for the purposes of this book's stated aims—are truly alternative positions. Perhaps most important, however, is the lack of any appreciation of the interconnectedness of the global challenges—a systems perspective. The book assumes that these challenges are independently solvable and therefore able to be ranked in a simple linear fashion.

The final chapter of *Global Crises, Global Solutions* presents the experts' "consensus" ranking of the alternatives. This, again, is a misuse of the term: each expert ranked the alternatives independently, and Lomborg presents the mean rankings as the consensus. Fortunately, the book includes each expert's individual rankings and reasoning, so that the reader can reconstruct the (still limited) range of opinions and the rationales behind the individual rankings.

What can we conclude about the original question? Unfortunately, very little. We have only the opinions of eight economists, whose thinking on these topics was already well-known before the exercise and changed very little after one week in Copenhagen. We are left with the mere illusion of scientific consensus, an illusion which the editor obviously intended.

But there is a deeper issue. This work demonstrates how worldview or vision can shape the results of purportedly objective analysis. Lomborg and the contributing authors share a worldview that has been called "technological optimism" (Costanza, 2000). Technological optimists assume that technical progress will solve all current and future social problems. Humans and their dominion over nature will continue to expand without limits. This worldview does not see population growth and overconsumption, among other sustainability issues, as problems.

As the work of Diamond (2004), Meadows et al. (2004), and literally thousands of other authors have shown, the problem of sustainability is today's core global problem. Will our completely interconnected global society fall into the same traps that led to Easter Island's collapse? I hope not, but we cannot assume these problems will be addressed, as Lomborg and associates do, by simply believing in the power of technology.

Unfortunately, even the title of Lomborg's book is a sad sham: the authors do not believe that there are any truly global crises, only challenges that a few tens of billions of dollars can solve. They have done the world a grave disservice by holding on to their unquestioned values and assumptions about the feasibility of unlimited economic growth. As demonstrated by the fate of the Easter Islanders, the Maya, the Greenland Norse, and several other historical societies, clinging to maladaptive values in the face of mounting evidence to the contrary could lead to collapse (Diamond, 2004). If we are to create a sustainable and desirable global human society in the 21st century, we must not repeat the same mistakes. This real global crisis requires global solutions, but instead Lomborg's book only perpetrates past myths.

Notes

1. See www.maweb.org for more information on the Millennium Ecosystem Assessment.

2. It is interesting to note that while Lomborg feels that a small group of like-minded economists are the

> The book assumes that these challenges are independently solvable and therefore able to be ranked in a simple linear fashion.

appropriate "experts" to consult on the best way to solve global problems, he has no trouble dismissing the broad and overwhelming scientific consensus reached by experts on the biophysical aspects of environmental issues (Lomborg, 2001).

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Global Population Policy: From Population Control to Reproductive Rights

Paige Whaley Eager
Aldershot, UK: Ashgate, 2004. 234 pages.

Reviewed by DUFF GILLESPIE

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No one can accuse Paige Whaley Eager of being overly nuanced. Starting with the title of her book, *Global Population Policy: From Population Control to Reproductive Rights,* she confronts the reader with absolutes. There has never been, of course, a "global population policy," nor can humankind's complex and diverse response to population and reproduction be easily separated into two camps, population control and reproductive rights.

For Eager, the evolution of population policy has been a tectonic battle between evil ("population controllers") and good (the "Global Women's Health and Rights Movement" or GWHRM). Population controllers are white men, mostly American, who are hell-bent on reducing the rate of population growth for economic, political, and national security reasons. Until the Reagan Administration, these powerful men made population control the centerpiece of U.S. foreign policy. They encouraged "governmental use of coercive methods" to compel women to use "unsafe contraceptives" (page 6).

Eager outlines the population controllers' other transgressions, the most egregious of
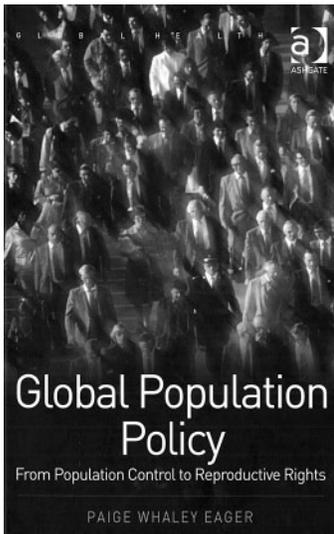
which is their disregard for women, who they view as little more than instruments for lowering the population growth rate. While there is no doubt that government family planning programs have perpetrated serious human rights abuses, Eager spends little time documenting them. If she had, she would have found such abuses to be the exception, not the rule, and certainly not as pervasive as her book implies.

Arrayed against this monolithic cabal of population controllers is the GWHRM, a construct Eager never really explains. She does describe in some detail how various women's groups, mostly from the North, altered the policy landscape in fundamental ways. Their labors were rewarded at the 1994 International Conference on Population and Development in Cairo, where essentially all countries endorsed a more comprehensive view of population that encompasses the concepts of sexual and reproductive health and rights (SRHR). Surprisingly, Eager spends very little time explaining SRHR but dwells extensively on what it is not: population control.

Quite rightly, Eager states that such terms as "population control" have been largely banished from official lexicons throughout the world. This excision is more than symbolic; policies and government officials are generally more sensitive to the rights and needs of women. Indeed, Eager could make a stronger case for the GWHRM by documenting the significant policy changes since Cairo throughout the developing world, such as raising the age of marriage, liberalizing abortion and divorce laws, and criminalizing or discouraging female genital cutting.

When polemists dichotomize complex subjects, their simplifications often distort reality. Eager is no exception: she gets many things—far too many to cover here—just plain wrong. One of her most egregious errors is her disdain for the underlying rationale of "population controllers": that rapid population growth impedes socio-economic development. Her derision is based on her personal philosophy; she makes no attempt to refute this assumption analytically and appears unaware of the extensive literature on population and development. If Eager had

> There has never been, of course, a "global population policy," nor can humankind's complex and diverse response to population and reproduction be easily separated into two camps, population control and reproductive rights.

consulted the masterful volume edited by Birdsall, Kelley, and Sinding (2001), she would have learned that the importance of population dynamics to development has never been as well-documented as it is today. Most of what the "population controllers" have been saying over the last three decades is actually true.

Eager's biggest mistake is grossly overstating the influence of the United States in convincing the developing world to decrease fertility rates. She is not only wrong, but also insulting. First, Eager tries to make the case that decreasing fertility is a core component of U.S. foreign assistance policy, which has never been the case. Uncomfortable realities that would call into question her assumptions about the United States' priorities are not presented or, perhaps, not known by the author. Eager feels the United States was particularly influential in the 1970s; yet, the annual budget for population programs ranged between $120 million to $250 million, and the total staff never exceeded 200 people. This modest level of commitment hardly reflects a high priority.

Unintentionally, Eager's portrayal of U.S. population controllers convincing or hoodwinking developing-country governments into mounting efforts to reduce their fertility is demeaning and wrong. For example, if the

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author had even cursorily examined the literature she would have discovered that Asian countries incorporated fertility reduction in their development plans before the United States even had a population program. It never seemed to occur to her that these countries, and just about every developing country today, might institute such policies and programs because they meet the needs and desires of their citizens when carried out in ways that respect those needs and desires.

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Governing Water: Contentious Transnational Politics and Global Institution Building

Ken Conca
Cambridge, MA: MIT Press, 2005. 457 pages.

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Integrated Water Resource Management (IWRM) suffers from a paucity of new knowledge, particularly in theoretical approaches. Very little of the last decade's avalanche of IWRM literature is groundbreaking or deeply insightful. The new angle on an age-old problem outlined in Ken Conca's *Governing Water: Contentious Transnational Politics and Global Institution Building* is therefore a breath of fresh air.

Governing Water is a hefty piece of work—457 pages—but its sheer size does not overwhelm the exquisite intellectual thread Conca expertly weaves. This sincere attempt to open the "black box" obscuring the governance of transboundary rivers describes efforts to conquer water resources through "violent" acts, such as dam building and aggressive engineering, and the counter-offensives against these acts.

A Funny Thing Happened

Conca introduces the *problematique* of IWRM governance with an elegant analysis of the opening ceremony of the Second World Water Forum at The Hague in 2000. The slick and glitzy event was cleverly hijacked by a naked woman and a number of athletic young men, who abseiled from the rafters above the keynote speaker's head, unfurling banners protesting the construction of a large dam in Spain. This cunningly planned protest action is deeply symbolic of the underlying tensions in the global quest to manage water. "A funny thing happened on the way to the World Water Forum," Conca observes wittily:

> The official report on the forum and ministerial conference made no mention of the disruptive incident or any other expres-

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sions of dissent throughout the meeting.…One motive for writing this book is to examine the stark disconnect between the forum's blueprint for forging a global water regime and the contentious politics surrounding water all around the world. (page 2)

Conca lists a series of vexing questions. Whose water is it? Who should have the legitimate power to decide? What does it mean to describe governments as sovereign and legitimate while also calling for private sector investment? What are the relationships among authority in the watershed, boardroom, and nation-state? Is there hope for a cooperative and broadly legitimate approach to water governance?

Shifting Focus

Having laid the foundation, Conca focuses on the politics of global institution building around local ecosystems, which he claims play three fundamental roles:

- They transcend elements of scale;
- They sustain local livelihoods and engender vibrant cultures that become unique identifying labels in a globalized world; and
- Increasingly, they are subjects of the global economic market, either as basic natural resources or ecotourism goods and services.[1]

Conca seeks to understand the inadequacy of negotiated international agreements or "regimes," which too often die on the negotiating table or prove ineffective. In light of this inadequacy, he shifts the focus from the regime paradigm in two new directions:

- Away from the environmental problems that neatly fit the regime solution towards the hidden, creeping, and cumulative impacts of the "assault on the global environment"; and
- Away from the substantive content of global environmental cooperation towards the procedural elements of environmental conflict.

Together, these new foci enable the reader to critically examine the way we establish rules that "channel deeply divisive, contentious debates when a broad consensus on substance may be unattainable" (page 6).

Pushing Rivers Around

Governing Water's first seven chapters each address an element of water governance, followed by two country case studies (Brazil and South Africa). Chapter 2 questions mainstream international relations (IR) scholarship, which does not seem to challenge the inherent flaws in choosing regimes to regulate interstate intercourse. Although regimes are assumed to be produced by bargaining, Conca argues that they actually take the form desired by the dominant coalition.[2]

Chapter 3, "Pushing Rivers Around," describes the impact of a century of dam building on southern Africa's culture and ecosystems. Rivers mean different things to different actors or stakeholders; they are spatial and temporal links that cross a range of issues and scales from the local to the international. Recognizing this, Conca provides critical but sensitive insights into the complexity of river basin management. He plumbs society's "hydraulic mission," identifying an emerging transnational network of technical experts who construct dams and related hydraulic infrastructure for multinational firms and global financial institutions. Conca makes a forceful case for shifting the focus of our scholarly attention to the cumulative impact of these individual acts of ecosystem modification.

Hydropolitical Theory

Chapter 4 provides excellent empirical insights into the emergence of a global regime on water resource management, starting with three startling new facts, discovered largely by Aaron Wolf's Transboundary Freshwater Dispute Database (TFDD) team at Oregon State University:[3]

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- The number of international rivers has increased as more rivers are "internationalized" by changes in political geography after the Cold War;
- International river basins cover almost half of the planet's land area; and
- A part of almost all sovereign states is located in an international river basin.

This is compelling stuff, because the lack of a theory of hydropolitics is IR's black hole—a hole that *Governing Water* may begin to plug. While many intuitively believe that water is a driver of conflict, as asserted by the now largely discredited "water wars" literature (e.g., Irani, 1991; Starr, 1991; Bulloch & Darwish, 1993; Gleick, 1994; de Villiers, 1999), Jesse Hamner and Aaron Wolf (1997) have shown that water resource management is more likely to catalyze cooperation than conflict between nation-states. According to their work, 145 international treaties on shared river basins have been generated since 1814 (Wolf et al., 2003). This is likely a gross underestimate, further strengthening Conca's argument (see, e.g., Turton et al., 2004, pages 387-389; Ashton et al*.,* 2005).[4]

Significantly, Conca finds that the content of basin-level accords has escaped serious notice, noting that "even if most of the world's shared basins remain uncovered by international accords, those for which accords are in place could be converging on a set of norms for shared governance" (page 106). Empirical evidence tentatively shows convergence around some core concepts—mostly procedural issues, such as sharing data and building confidence—but these are still framed in the polarizing language of sovereignty. Consequently, there is little evidence of a common normative structure.

Water Is a Social and an Economic Resource

Chapter 5 analyzes the emergence of a global community under the banner of IWRM. Caught in the tension between planning and marketization, this global network is ambivalent toward the most fundamentally contested issues in the water sector—the basic questions Conca poses (noted above)—leading to the near-hegemony of the core logic of IWRM. However, challenges to this hegemony include the nascent WISER ("Water Is a Social and an Economic Resource") discourse that seeks to elevate the social values of water (see Allan, 2000, page 27).

Another challenge starting to raise its head (but not listed in *Governing Water)* disputes the assumption that the river basin is the natural unit of management. The four most economically developed countries in southern Africa—South Africa, Botswana, Namibia, and Zimbabwe—are all reaching the limits of their readily available water and thus may face constraints on their economic growth. However, this constraint is being effectively managed by a combined policy that uses interbasin transfers and moves water out of agriculture to the industrial and services sectors, a softer approach heavily dependent on the existence of effective governance structures.

The Real Water Wars

Chapter 6 unpacks the complex dynamics of the anti-dam lobby and the democratization of watershed management. Conca builds a case for the real water wars—not between sovereign states, but between sub-national groups. An array of state entities and other beneficiaries of large engineering projects are pitted against opponents from the affected communities, aligned with sympathetic environmental and human rights NGOs. These disputes often fly under the radar of international river diplomacy, rendering the international regime a "blunt and limited instrument for responding to this type of complex, multilayered struggle, for all the reasons discussed in Chapter 2" (page 169).

Defining a bounded, finite, fixed "sovereign" territory is problematic when dealing with rivers that are fluid, dynamic, and complex. Conca usefully notes that one way out of this core hydropolitical conundrum is to draw distinctions among transnational advocacy groups (grounded in information-based framing poli-

tics), transnational coalitions (grounded in coordinated campaigns), and transnational social movements (grounded in joint mobilization), thus shifting the focus to assess norms evolving around notions of watershed democracy.

At the Second World Water Forum, Ismail Serageldin (then vice president of the World Bank) asserted that two controversies stood in the way of global progress towards a more sustainable water future: the debate over large dams, and a complex set of economic issues relating to property rights, privatization, water exports, water pricing, and foreign investment and ownership in the water sector. While unraveling this set of issues in Chapter 7, Conca discusses the implications for the sub-national water sector of the General Agreement on Trade in Services (GATS), which seeks to liberalize trade in services and ferret out regulations that restrain it. GATS thus opens up water and sanitation services as possible targets, and consequently potential entry points, for foreign actors in a traditionally national sphere. This whole new arena for hydropolitical interaction is mostly unknown to water resource managers and professionals, particularly in the developing world.

Brazil and South Africa: Case Studies

Brazil and South Africa are central players in the global debate surrounding water and rivers; both countries have important transboundary river basins and strong social movements protesting large dams and the privatization of water. Much of the water in Brazil, which is a signatory to 15 international water agreements, is the subject of active and violent dispute. Yet, despite these enduring conflicts, governance of water and aquatic ecosystems in Brazil is increasingly institutionalized around a shared understanding of roles and rules.

The complex case of South Africa is seldom fully understood by foreign writers. Conca does an exceptionally good job, however, of tracing the golden thread of water and political contestation in the country. Post-apartheid South

> Four important forces—international law, neo-liberal structural adjustment, elite networking among water resource professionals, and transnational activism for the rights of local communities—are pushing and pulling water-related policies, laws, and practices in different directions.

African water law, policy, and practice is more technocratic and less participatory than Brazil's. In addition, South Africa's desire to be a good riparian neighbor has shaped water governance. Water marketization and associated issues are more controversial in South Africa, but Brazil has witnessed greater resistance to water infrastructure projects. These conclusions demonstrate the great value that serious empirical studies can offer to the discipline of hydropolitics and IR theory.

Conclusion

Four important forces—international law, neo-liberal structural adjustment, elite networking among water resource professionals, and transnational activism for the rights of local communities—are pushing and pulling water-related policies, laws, and practices in different directions. Each force is thoroughly transnational and sufficiently embedded in international intercourse to govern and influence global practice, but none has yet generated a dominant framework for governing watershed practices at the local level. Therefore, if watershed governance is being normalized across national boundaries, it is taking place at the intersection of these various forces. Consequently, we should not assume that international environ-

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mental agreements are the best—or indeed the only—ways to govern rivers and aquatic ecosystems that cross international political borders.

In conclusion, Conca's well-written and thought-provoking *Governing Water: Contentious Transnational Politics and Global Institution Building* is a serious book. It fills major gaps in IR theory, IWRM literature, and the discipline of environmental security, and it informs water resource managers of the implications of GATS. It demonstrates the real value of empirical research, taking its place alongside the paradigm-busting work led by Aaron Wolf at Oregon State University, Peter Ashton at the Council for Scientific and Industrial Research (CSIR) in South Africa, Tony Allan at the Water Issues Group in London, and Nils Petter Gleditsch at the International Peace Research Institute in Oslo. Conca's work should be read by university students, water sector professionals, and IR scholars alike, and I sincerely believe that it will play a substantial role in placing the discipline of hydropolitics firmly on the IR research agenda.

Notes

1. These three roles resonate with a current initiative by the Universities Partnership for Transboundary Waters (UPTW) to understand governance of water and aquatic ecosystems as the manifestation of a "trialogue," which is a specialized form of dialogue among government, science, and society. In conjunction with Group on Development Issues (EGDI) at the Swedish Ministry of Foreign Affairs, the Swedish Water House, and UNESCO, UPTW hosted a special session at the Stockholm World Water Week 2005. Following a second workshop in October 2005, the trialogue governance model will be published in a textbook and a special edited volume of *Water Policy,* the scientific journal of the World Water Council.

2. This echoes research by Tony Allan and his team of graduate students at the School of Oriental and African Studies and Kings College London into what they are calling "hydro-hegemony."

3. For more information, see http://www.transboundarywaters.orst.edu/

4. Table 9.1 in Turton et al. (2004) identifies 30 international water agreements to which South Africa is a signatory, 20 of which are not listed in the *Atlas of International Freshwater Agreements* (United Nations Environment Programme, 2002). Ashton et al. (2005) has identified 59, but not all of these are limited to river basin management.

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HIV and National Security: Where Are the Links?

Laurie Garrett
New York: Council on Foreign Relations, 2005. 67 pages.

Reviewed by JENNIFER WISNEWSKI KACZOR

Since 2000, the international policymaking community has discussed HIV/AIDS in the context of national and international security. *HIV and National Security: Where Are the Links?* by Laurie Garrett of the Council on Foreign Relations summarizes the state of the argument and examines the research linking HIV/AIDS to security.[1]

Garrett treads familiar ground, detailing the risks posed by high HIV prevalence in militaries, infection rates among UN peacekeepers, the impact of AIDS orphans, demographic trends such as "youth bulges" and urbanization, and the connections to economic security. Despite the lack of groundbreaking information, Garrett is careful to outline the real challenges facing assessments of AIDS' threat to national and international security. One interesting chapter calls for more funding to improve tracking of virus types and mutations, outlining the real benefits to the international community. Policy reports rarely delve into the science of the disease, and Garrett's argument for improved tracking is convincing.

Interestingly, Garrett chooses to begin the body of the report by comparing HIV/AIDS to another great killer, the Black Plague, which ravaged Europe in the 13th, 14th, and 15th centuries, wiping out two-thirds of the population and bringing sweeping social, political, and economic changes in its wake. Though the case of the Black Plague illustrates the way a disease can engender widespread social change, it is unclear exactly what policymakers should take away from this lesson. Most historians would argue that the long-term impacts of the Black Plague led to the end of feudalism and the eventual rise of democracy in Europe. Garrett could have bet-

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ter spent the space by citing specific examples of successful initiatives or projects—international, national, and local—that could mitigate the impacts of the HIV/AIDS epidemic.

Despite this one problem, Garrett ends strongly with six key recommendations for policymakers, including:

- Develop strategies for preventing the emergence of drug-resistant HIV strains;
- Develop HIV-prevention programs aimed specifically at uniformed personnel;
- Use viral genetic fingerprinting to track the spread of HIV;
- Fund long-term longitudinal studies on population cohorts to study the social, political, and economic impact of the AIDS epidemic;
- Develop an HIV vaccine; and
- Develop strategies to provide HIV treatment for all sufferers, not only the elite.

HIV and National Security is most useful for those interested in a review of the current literature linking AIDS to security issues. It is a concise, well-written, and useful addition to the literature on this important connection.

Notes

1. A pdf copy of the report can be downloaded from the Council on Foreign Relations website, at http://www.cfr.org/content/publications/attachments/HIV_National_Security.pdf
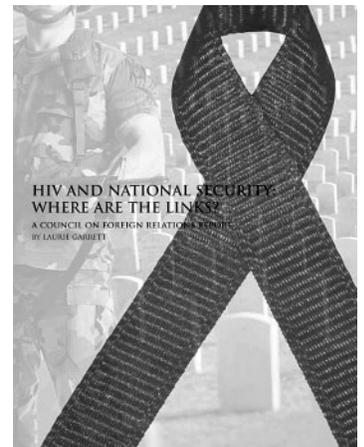
Dams and Development: Transnational Struggles for Water and Power

By Sanjeev Khagram
Ithaca: Cornell University Press, 2004. 270 pages.

Identity, Conflict and Cooperation in International River Systems

By Jack Kalpakian
Aldershot, UK: Ashgate, 2004. 213 pages.

Reviewed by ANTON EARLE

Anton Earle is the deputy head of the African Water Issues Research Unit, based at the University of Pretoria, South Africa. He conducts applied research into southern African water management issues, with a specific focus on transboundary water management. As a member of the Regional Technical Committee of the Global Water Partnership-Southern Africa, he facilitates research and capacity-building initiatives on transboundary water management issues in the Okavango, Limpopo, Orange-Senqu, and Incomati river basins.

Fresh water—its availability, distribution, and control—has been woven into the fabric of human settlement and development at least since the Neolithic Revolution. Not only necessary for daily survival, water is an essential part of our economy, society, and ecology. But this much-needed resource is distributed across space and time in a highly dispersed and variable pattern. Not only do large parts of the globe contend with general water scarcity, they also suffer fluctuations in supply.

In reaction to this natural climatic variability, people have tried to secure their water supplies in dry times, storing water in reservoirs or transferring it from water-rich areas. The path toward hydro-security invariably crosses the tracks of power—be it political, economic, or military. Powerful countries can appropriate a greater share of water resources, while powerful groups within countries can mobilize resources in their favor. Large-scale infrastructure development can provide many benefits, but the costs affect different groups in unequal measures. On an international scale, these power inequalities have sparked debate about the likelihood of "water wars." Especially in the world's arid zones, such as the Middle East and southern Africa, some predict that the wars of the future will be fought to secure scarce water resources for growing populations—although none have to date (Wolf et al., 2003). On a local level increased water demand, especially due to urbanization and industrialization, pits rural communities dependent on agriculture against the supporters of large dam-building projects.

Dams and Development

In *Dams and Development: Transnational Struggles for Water and Power*, Sanjeev Khagram describes the rising opposition to large-scale dam-building projects in the developing world. According to Khagram, the traditional model of development seeks mainly to enlarge GDP through large-scale, top-down technocratic
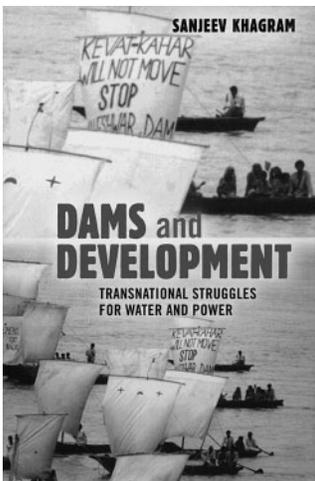
methods of exploiting natural resources. The alternative vision of development is based on "bottom-up participatory processes directed towards socially just and ecologically sustainable outcomes," which is gaining more international acceptance (page 4). He contends that the conflicts associated with competition between these two modes of development have been most vividly displayed in the transnational opposition to large-dam projects.

Khagram identifies three important prerequisites for ensuring effective opposition to large-dam projects:

- Global norms and principles regarding human rights, indigenous peoples, and the environment, among others, must converge in international anti-dam pressure groups;
- Local opposition to large-dam projects must link up with international pressure groups to be effective; and
- The political environment must be open and democratic, upholding civil liberties such as freedom of the press, equality before the law, and freedom of association.

Khagram investigates case studies from six developing countries with different degrees of local opposition to large dams—India, Brazil, Indonesia, South Africa, Lesotho, and China—but half the book is devoted to India's Narmada River project. Initial local resistance efforts in the 1950s were unsuccessful; only after local groups began working with international groups did they stop the largest components of the project. By making international donors, such as the World Bank, aware of the project's negative social and environmental impacts, the opposition swung opinion their way. Intuitively, one would expect this nonviolent approach to be more successful in the land of Mahatma Gandhi than in Indonesia or China.

Surprisingly, social resistance to large dams managed to flourish in Brazil, even during the military rule of 1964–1985. The World Commission on Dams (WCD), of which Khagram was a member, ranks Brazil as one of the top 10 big-dam builders in the world

> The cases show that countries' actions are more likely to be informed by national identity issues than by hydrologic realities. Thus, Sudan chooses to side with Egypt in the management of the Nile River, even though it could gain more by siding with other riparians. The common culture and religion shared by the countries' ruling elites exert greater influence than hydrology.

(WCD, 2000). Since the 1950s, successive governments developed plans for large-scale water storage, water transfer, and hydropower schemes. By the mid-1980s, anti-dam groups had managed to mobilize around issues such as native rights, displacement processes, compensation packages, and environmental concerns, in conjunction with international movements. Most of the projects were abandoned as costs spiraled, driven by the social and environmental provisions required for construction and operation. Brazil's debt crisis in the 1980s reduced public funding for big-dam projects, but the efforts of social opposition movements prevented the country from borrowing money from the World Bank and other donors to fill the gap.

A rapidly industrializing arid country, South Africa is also ranked among the top 10 large-dam builders by the WCD. Khagram hypothesizes that the Lesotho Highlands Water Project, which sought to transfer water from South Africa's neighbor, moved ahead in 1986 and completed its first phase in 2002 due to a lack of domestic social resistance to the project. Khagram does not tell us, however, whether

Identity, Conflict and Cooperation in International River Systems

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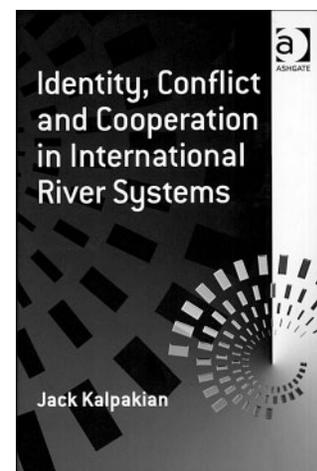
people in the region supported the project or whether resistance faded in the face of political turbulence in the early 1990s. Certainly, the rate of big-dam building in South Africa has dropped markedly over the past decade, but is this due to social mobilization against dams or because all the prime sites are in use? This question could also be posed about Brazil and India.

While *Dams and Development* provides a wealth of detailed information on international opposition to big-dam building in the developing world, it focuses too much on India's Narmada Valley. The reader is caught up in the minutiae of protest marches, meetings, and court cases. Coupled with the large number of acronyms and mixture of metric and imperial measurement units (e.g., acre-feet coexist with cubic meters), the book is cumbersome to read. However, these problems should not detract from its solid contribution to the scientific literature—they just require the reader's perseverance.

Identity, Conflict and Cooperation in International River Systems

In *Identity, Conflict and Cooperation in International River Systems*, Jack Kalpakian sets out to correct the emphasis on water conflict in international relations literature. For a book that grew out of a Ph.D. dissertation, it reads surprisingly well, reviewing literature on international river management and using three case studies to illustrate the de-coupling of water as a direct driver of conflict. The author disproves the hypothesis that water disputes lead to serious conflicts between states, but he fails to convince us when he refers to this as "a completely unforeseen result" (page 2).

Kalpakian's literature review focuses on the Realist and post-Realist schools of international relations, with an emphasis on writers such as Thomas Homer-Dixon (1995a, 1995b), Thomas Naff (1993), and Nurit Kliot (1994), all broadly in the "water wars" camp. Although he notes that water disputes do not cause inter-state conflicts—instead, he says they are "secondary fora for conflicts rooted in national identity questions" (page 7)—he does not mention the research conducted by Aaron Wolf (1998; Wolf et al., 2003), Anthony Allan (1998a, 1998b, 1999, 2000, 2002), and Anthony Turton (2003; Turton & Earle, 2005), which promotes this alternative school of thought. In other words, issues of national identity and views of co-riparian states are more likely sources of conflict than water. The omission of the work by Wolf, Allan, and Turton on this view detracts from the book and is a surprising oversight.

The strength of *Identity, Conflict and Cooperation* lies in its comprehensively researched case studies of the Nile, Tigris-Euphrates, and Indus rivers, which include a wealth of data on hydrology, water use, and socio-economic conditions in the basin states. In all three cases, data are contested—the basin states do not agree on even basic facts such as the extent and size of catchments. The cases show that countries' actions are more likely to be informed by national identity issues than by hydrologic realities. Thus, Sudan chooses to side with Egypt in the management of the Nile River, even though it could gain more by siding with other riparians. The common culture and religion shared by the countries' ruling elites exert greater influence than hydrology. Consequently, the state "is becoming less and less of an independent actor in International Relations" (page 84).

Disputes over the allocation of water from the Tigris-Euphrates will only end once the underlying identity clash is resolved, which dates to World War I and the animosity between Turkey and its Arab neighbors arising from the demise of the Ottoman Empire. Syria's intermittent support of Kurdish separatist movements in Turkey also destabilizes the relationship. "Identity tends to be both the organizing criteria and cause of conflict. It is rooted in the language of exclusion and inclusion of groups into or out of the respective national governing communities of the states involved" (page 140).

The 1960 agreement between Indian Prime Minister Jawaharlal Nehru and Pakistani President Field Marshall Ayub Khan resolved issues of water allocation, financing, and adju-

dication on the Indus River. Unfortunately, this functional cooperation—even at a political level—has not spilled over into general relations between the two countries. Three wars (1947, 1965, and 1971) have been fought between the states, the first two over Kashmir and the last on the partitioning of Bangladesh. Much of the rest of the basin (e.g., Afghanistan and Nepal) also lacks peace and stability. Thus the hydrologic interdependence between India and Pakistan, although leading to cooperation over water resources, has not led to peace in the region. The reader is left to wonder if a greater degree of water stress would contribute to the hostility between the states—a significant omission from an otherwise illuminating case study.

Dams and Development and *Identity, Conflict and Cooperation* are solid contributions to our understanding of the nexus of water, power, and conflict, at the interstate as well as domestic level. Both books have their limitations—such as a lack of maps illustrating the case studies—and could have used a good editor to improve the readability of the first and correct the second's many spelling and grammatical errors. But these problems do not detract from the books' overall usefulness to the study of water conflict and cooperation.

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Journal of Peace Research: Special Issue on the Demography of Conflict and Violence

Henrik Urdal and Helge Brunborg (Eds.)
Volume 42, No. 4, July 2005.

Reviewed by CHRISTIAN LEUPRECHT

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The *Journal of Peace Research (JPR)* can always be relied upon to deliver an interesting, relevant, high-quality product. This special issue, tackling the relationship between demography and conflict, lives up to *JPR*'s reputation.[1]

In recent years, the prominence of conflict and demography has grown. In the aftermath of the Cold War, international wars have almost disappeared. Domestic strife has also waned. All forms of civil war—e.g., ideological, revolutionary—have declined, save one: ethnopolitical conflict. The vast majority of civil conflicts now involve issues of language, culture, and especially religion. Since 3,000 of the world's estimated 5,000 ethnic groups are located in Asia and another 1,800 in Africa, it is no surprise that these two continents have emerged as the world's main internecine flashpoints.

These two continents are also of particular interest to demographers. On no continent is the population expected to burgeon in the 21st century as in Africa. AIDS notwithstanding (70 percent of those infected with the virus live in Africa), the continent's population is projected to grow 50 percent by 2050. Similarly, many Asian states, especially the arc of Muslim countries stretching from Egypt through Indonesia, will continue to be subject to considerable—albeit differentiated—pressures owing to their growing populations.

Demographic composition and demographic change are never a cause of conflict or violence, per se. Researchers tends to ask questions about contingency instead: what impact, if any, might a population's composition have on political stability? To what extent does relative deprivation factor into the relationship between demographic change and conflict? Is the competition for scarce natural resources, such as water, a growing problem? And how does migration affect population dynamics within and between population groups?

Two of the *JPR* articles address relative deprivation. Marie Besançon examines the relationship between economic inequality and political conflict. Using aggregate regression-type statistical analysis with data from the State Failure Task Force,[2] she arrives at the counterintuitive (and thus all the more important) conclusion that economic inequality is not a predictor of genocide. Her analysis also finds ethnic conflict to be more likely when groups are economically equal; improving a group's economic stature without also addressing political and social grievances actually increases the propensity for conflict. Unfortunately, Besançon's investigation does not tell us whether political and social grievances are occasioned by improved economic conditions, nor whether the potential for conflict can be mitigated if political and social grievances are addressed without improving the equality of condition.

Helen Ware compares the determinants of conflict in Polynesia, Micronesia, and Melanesia. The article is worth reading for the wealth of experience she brings as a long-time Australian diplomat. In her conclusion, she negates the neo-Malthusian claim that population pressures on land and natural resources precipitate conflict. The second part of the conclusion, however, unfortunately posits, as an alternative explanation, the popular myth that "idle hands make work for the devil." Of course, there are many peaceful places in the world with a plethora of unemployed young men. Therefore, what other variables intervene in the particular case of Oceania? Had the author's research addressed this question, the article's contribution to the literature would have been considerably more germane.

Henrik Urdal—who co-edited this special issue with statistician Helge Brunborg—also questions the neo-Malthusian proposition. His statistical contribution finds that population pressure on natural resources is not a determinant of a state's security or its political stability. Countries with rapidly growing populations, high rates of urbanization, or large refugee populations do not face a disproportionate risk of civil war.

Urdal's finding, however, contrasts to some degree with Manus Midlarsky's analysis of genocide. Comparing pogroms committed against European Jews, Midlarsky infers that genocide is more likely when loss of territory is compounded by an influx of refugees. Still, Urdal's and Midlarsky's findings are commensurate insofar as they suggest that the environmental pressures and competition that might ensue from less land and more people are not to blame for any conflict that might arise.

Also on the topic of refugees, Stephen Lubkemann's ethnographic research in Mozambique leads him to caution against generalizing about the cause of forced migration in a given conflict. His research confirms other findings (e.g., Sambanis, 2001) that show that the same macro-conflict may have different logics of violence at the local level. It follows that addressing the problem of displaced persons during a conflict necessitates a multipronged, micro-approach to conflict resolution.

John Landers asks whether the advent of firearms had a measurable demographic impact on warfare in Europe. From his comparative historical analysis, he concludes that the demographic impact was a function of the strategies adopted by rulers rather than of the growing scale and cost of warfare. His careful research contrasts starkly with the banality of Quan Li and Ming Wen's behavioralist pretensions. Under the positivist guise of substituting sophisticated mathematical techniques for substantive depth, they arrive at the perfectly intuitive conclusion that more severe conflicts lead to greater loss of life. Their article's redeeming qualities, such as its focus on the gender differences in mortality rates in the immediate and long-term aftermath of violent conflict, are compromised by its blind faith in weak mathematical relationships. Had Li and Wen struck a better balance between pedestrian use of statistical methods and understanding the literature, they would have realized that the relationship between degree of conflict and loss of life has already been amply documented and is thus hardly novel.

In the grand scheme of things, however, the research in this special issue makes several germane contributions to the literature on the demography of conflict and violence. First, it complements a body of research that challenges neo-Malthusians to advance more nuanced claims. Second, violent causes and consequences of migration warrant our attention if we are to resolve or avert future conflict. Third, the mass destruction of human life is due less to advanced weaponry than light arms under the control of instrumentalist elites. Fourth, we should pay more attention to political and social grievances and put less emphasis on improving socio-economic well-being. Thus, environmental sustainability and relative-deprivation policies are more likely to reduce the risk of conflict and violence if they are linked to socio-political improvement.

The seven articles in this edition of *JPR* provide a good overview of many of the key

> Environmental sustainability and relative-deprivation policies are more likely to reduce the risk of conflict and violence if they are linked to socio-political improvement.

debates on the relationship between demography and conflict. The edition is refreshingly interdisciplinary, spanning political science, history, anthropology, statistics, international relations, and foreign policy. The methodological pluralism is notable: quantitative and statistical work is balanced by qualitative and comparative approaches, as well as an impressive ethnographic case study. Senior scholars are joined by some very talented young scholars. The heavily gendered field of conflict studies notwithstanding, three of the seven articles are authored by women. The authors come from four continents and the research and data cover just about every corner of the globe. They hone in on different eras and investigate diverse types of conflict and violence. In other words, this evenhanded volume unequivocally does justice to the topic in every conceivable way. And finally, the journal tops it all off with an excellent critical review of the most recent literature on the relationship between demography and conflict.

Notes

1. The special issue emerged from a conference on the demography of conflict and violence sponsored by the International Union for Scientific Study of Population and the Peace Research Institute of Oslo, held in Norway in 2003. The *European Journal of Population* (2005, Volume 21, Issues 2-3) has published a set of additional articles emerging from the conference that will be of greater interest to strict demographers.

2. Now known as the Political Instability Task Force; see http://globalpolicy.gmu.edu/pitf/

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The Party's Over: Oil, War and the Fate of Industrial Societies

Richard Heinberg
Gabriola Island, British Columbia: New Society Publishers, 2003. 274 pages.

Reviewed by Michael Renner

Michael Renner is a senior researcher at the Worldwatch Institute, where he directs the Global Security Project. His main research interest concerns the intersection between resources, environment, and peace and conflict issues.

As oil prices rise, turmoil in Iraq continues, and the United States, China, and others jockey for access to oil and gas resources, energy issues are once more climbing to the top of the global agenda. But if journalist and educator Richard Heinberg is correct, these concerns are only a foretaste of far more fundamental upheavals to come.

According to Heinberg's latest book, *The Party's Over: Oil, War and the Fate of Industrial Societies,* industrial civilization as we know it—predicated on the consumption of cheap, but finite, reserves of fossil fuels—is drawing to a close, as oil production will soon peak and then begin a slow but inexorable decline. As it declines, competition for remaining energy resources will grow, prices will rise, countries will undergo wrenching economic and political changes, and the global human carrying capacity will plummet.

Mainstream energy analysts project the world's demand for oil will grow endlessly—

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the typical scenario foresees a 50 percent expansion in the next 20 years—but how will that rising demand be satisfied? Heinberg points out that the rate of global oil discoveries peaked in the 1960s and that consumption far outpaces today's new discoveries. Moreover, the amount of energy required to find additional deposits keeps increasing, as the easily-extracted deposits are drained, thus squeezing the amount of "net energy" available to society. In the United States, for instance, the amount of energy extracted relative to the energy expended to find and extract oil fell from 28:1 in 1916 to 2:1 in 1985, and continues to drop.

Pioneered by petroleum geologist M. King Hubbert (1969), the concept of "peak oil" was long derided or ignored. According to Hubbert, any given oil field will reach its production peak when roughly half of the total oil in the reservoir has been extracted, followed by a steady decline in output. In the 1950s, Hubbert correctly predicted that U.S. oil production would peak between 1966 and 1972; the actual peak occurred in 1970.

While U.S. reserves have been largely depleted, conventional wisdom suggests that supplies from other regions of the world will remain abundant. But even in oil-rich Saudi Arabia key fields may be past their prime, limiting the country's ability to satisfy rising demand. The Saudis angrily deny such assertions, but have never refuted them with concrete evidence to the contrary.

The literature on this previously near-taboo subject is growing fast, but not surprisingly, there is no consensus on when oil production might peak globally. The U.S. Department of Energy (1998) expects the peak to occur near the middle of this century; Heinberg contends that it will occur much earlier—some time between 2006 and 2015.

But pinpointing when the peak will happen is less important than understanding its likely consequences and preparing for the post-peak period—and, ultimately, life after oil. Acknowledging that forecasts are necessarily speculative, Heinberg offers a range of equally pessimistic and unpalatable predictions for the post-petroleum age—in his own words, a "century of impending famine, disease, economic collapse, despotism, and resource wars" (page 199).

The end of cheap and plentiful energy will cause the world economy to sputter, producing fewer goods and services, fewer jobs, and a financial crisis. Fewer cars will be built, and only the wealthy will be able to afford them. Road building will grind to a halt and existing roads will gradually disintegrate. Air travel will become prohibitively expensive. Without abundant transportation fuels, businesses will return to local production for local consumption—globalization in reverse. And agriculture will support far smaller populations: "The agricultural miracle of the 20th century may become the agricultural apocalypse of the 21st" (page 177).

Of equal importance are the likely social and political impacts, greatly exacerbating even today's grotesque inequalities and triggering more intense struggles between empowered and disempowered groups, as well as intergenerational conflict. Coming decades will likely see more frequent and deadly conflicts over fading energy supplies. Heinberg predicts that these scarcities and pressures "will likely place ever greater stress on the already battered democratic ideals of industrial societies" (page 188). He is skeptical that large nation-states as we know them will hold together under such conditions, and he foresees the emergence of regional enclaves—which could be either democratic or authoritarian—in their place.

The era of cheap oil may have been a promised land for those—mostly the inhabitants of Western countries—who benefited from the flow of "black gold." But for many others, particularly the inhabitants of poor oil-producing countries, oil is more aptly described as the "devil's tears." A growing literature has focused on the downside of oil development. For example, in *Oil: Politics, Poverty, and the Planet*, *Financial Times* journalist Toby Shelley (2005) summarizes the social and economic distortions that have afflicted so many oil-producing countries, including growing poverty and inequality, the inability to develop a vibrant economy out-

Environmental sustainability and relative-deprivation policies are more likely to reduce the risk of conflict and violence if they are linked to socio-political improvement.

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side the oil sector, massive corruption and patronage, and civil conflict.

The oil-related wars of the past and present have been essentially fought to divide the spoils. In the future, conflicts are more likely to arise to secure dwindling supplies, particularly as rising economic powers such as China and India join Europe, North America, and Japan in their voracious appetite for energy.

What about alternatives to oil? Oil is a particularly valuable commodity because it is easily transported, energy-dense, and suitable for many types of uses—and thus difficult to replace. Natural gas, coal, and nuclear energy are no saviors in Heinberg's judgment. Each comes with its own set of problems, including pollution, vexing—and perhaps irresolvable—waste disposal problems, dangers to human health, and declining net energy yield. These are valid observations, yet societies may pursue these options anyway, because industries are addicted to endless growth, irrespective of the costs.

Heinberg also throws cold water on environmentalists' sometimes cozy assumptions. Though he is in favor of pursuing wind and solar power, he cautions that it will take decades to fully develop them. Even then, electricity cannot easily provide the fuel needs of transportation and agriculture. "A Golden Age of plentiful energy from renewable sources is simply not in the cards," he says (page 4).

Could fuel cells and a hydrogen economy come to the rescue? Heinberg agrees there are reasons to be hopeful, but he scorns boosters that "occasionally exhibit a techno-utopianism of almost messianic intensity" (page 147). He warns that the transition to a hydrogen energy infrastructure would require huge amounts of time and money, and that hydrogen production always uses more energy than the resulting hydrogen will yield. And dwindling natural gas supplies will soon force decision-makers to decide whether the transition to a hydrogen economy or heating people's homes should receive priority.

Heinberg is careful to note that he is not arguing that we abandon the development of such alternatives—quite the contrary. But he emphasizes that the transition to a new energy system will entail an almost complete redesign of industrial societies and wrenching adjustments toward a "less mobile, more localized, and more materially modest society." He warns that "it is misleading to think that we can achieve that result easily or painlessly" (page 165).

The choice is not whether, but how to reduce energy use, and how to deliberately, systematically simplify society's structures: "gracefully and peacefully… or petulantly and violently" (page 230). Heinberg refers to this as a "managed collapse," as opposed to a sudden and chaotic disintegration. He does not offer (or claim to offer) novel solutions. But his provocative book is a wake-up call rousing us from our abundance-induced complacency. One does not have to share all of the author's pessimistic prognostications to agree that we urgently need fundamental changes in policy.

The political obstacles are enormous, and Heinberg acknowledges that "the vast majority of people will continue to prefer happy illusions to the stark truth," voting for candidates and parties that promise a rosy future (page 200). He laments lost opportunities for launching a transition during the past three decades. While it is now too late for a completely painless transition, Heinberg argues that it is never too late to improve the future. In an otherwise pessimistic analysis, he is cautiously hopeful that these radical shifts can occur if an informed citizenry dramatically increases its involvement. The solution, then, lies not so much in alternative technologies, but in a revitalized political process.

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The Return of Malthus: Environmentalism and Post-war Population-Resource Crises

Björn-Ola Linnér
Isle of Harris, UK: White Horse Press, 2003. 303 pages.

Reviewed by TED GAULIN

In the 1970s the ecologist Garrett Hardin observed that although long dead, Thomas Malthus continues to haunt each new generation of scholars (Daly, 1977, page 43). In his excellent new book, *The Return of Malthus: Environmentalism and Post-war Population-Resource Crises*, Björn-Ola Linnér explains in detail why Malthusian concerns have been raised intermittently over the past 50 years.

Malthus, one will recall, was an 18th century British economist and clergyman who suggested that humanity was likely to outstrip the food supply. This prediction arose from his observation that population growth increased exponentially while agricultural production increased arithmetically (Malthus, 1798). Left unchecked, human reproduction would lead to famine, instability, and war. Since the end of World War II, according to Linnér, similar Malthusian fears have risen and fallen in three waves.

The first wave emerged immediately after World War II, as hunger reigned in much of Europe and Asia. Years of war had despoiled farmland and depleted livestock; dilapidated transportation systems hindered food distribution. Parts of Europe experienced actual starvation. However, massive provisions of American food and reconstruction aid averted the worst outcomes. Within a few years agricultural production—at least in Western Europe—began to recover.

Paradoxically, even after this crisis had been averted, the fears continued. Linnér argues that political and economic factors account for the persistence of Malthusian concerns. In particular, he points to the transformation of the global economy and the geopolitical interests of the United States. The new world economy that the

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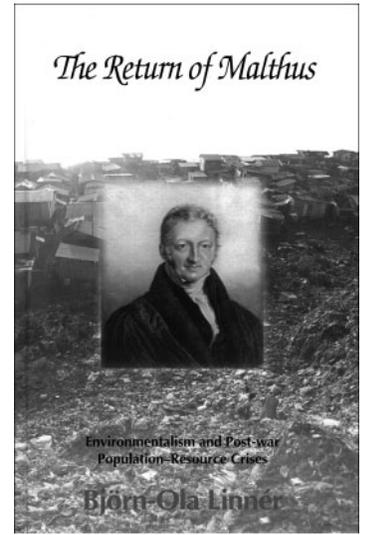
United States sought to construct after the war depended on a steady flow of raw materials. Political and social unrest in countries providing these materials—many of which happened to be resource-scarce—would be detrimental to this new interlinked economy.

In addition, American policymakers worried that resource scarcity in poor countries might engender political unrest and leave them ripe for a communist takeover. Thus, the issue of natural resources became vital to U.S. national security policy (page 33). Indeed, the resource-security nexus underlay Truman's Point Four Program, which specifically sought to aid underdeveloped areas. Years later, U.S. efforts to prevent famine in India was arguably another manifestation of these concerns (page 153).

After a brief interregnum of optimism in the 1950s, neo-Malthusianism returned with a vengeance in the 1960s. This second wave of Malthusian anxiety arose in part from historical circumstance: catastrophic famines in Asia and Africa killed millions, lending credence to the warnings of an impending population-resource crisis. Global food trading patterns also shifted; until World War II, many developing countries were net exporters of food. By the 1960s, they imported 13 million tons annually—consistent with the image of a looming crisis.

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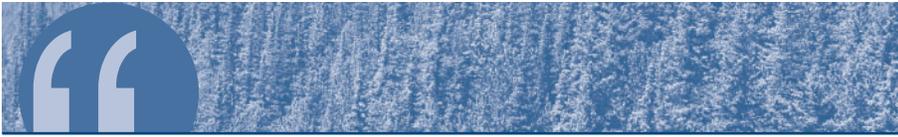
Linnér shows how the bulk of biotechnology research has been, and continues to be, directed towards crops for Western markets. Yet, for the last decade the biotech industry's primary arguments center on feeding the world's poor.

This wave of concern was also influenced by the growing scientific recognition that human behavior was transforming the environment. This was a new twist in the Malthusian logic: not only were the differential rates of population growth and agricultural production on a crash course, human beings were actually undermining the productive capacity of the Earth through pollution and despoliation. We were burning the environmental candle at both ends, so to speak. These developments led to an explosion of neo-Malthusian scholarship by thinkers like William Vogt, Fairfield Osborn, Julian Huxley, Garrett Hardin, and Paul Ehrlich—whose provocatively titled *The Population Bomb* (1968) became a national bestseller.

Throughout his narrative, Linnér returns to one particular neo-Malthusian thinker, the Swedish biologist Georg Borgström. Borgström is most well-known for his 1965 book *The Hungry Planet*, but he began writing passionately about population-resource issues in the early 1950s. Linnér shows Borgström to be a particularly prescient scholar whose work should be better appreciated. For example, his concept of "ghost acreage"—the amount of additional arable land a country would require in order to be able to feed itself—anticipated by 30 years the term "ecological footprint." His efforts to track food and energy flows on a global scale anticipated the full-cost accounting approach that environmental economists use today. His calls for "nutritional equalization" would be perfectly in sync with the appeals of today's environmental

justice movement. In addition, his 1960s estimates of future population levels have proved—in hindsight—to be particularly accurate.

Linnér does not simply wish to raise Borgström's historical profile; he is interested in Borgström as a "conveyer of ideas" on environmental issues. A conveyer serves as a mediator between the scientific community, policymakers, and society at large. In tracing Borgström's career Linnér demonstrates how conveyers can become controversial, inciting both praise and resentment from the general public and within the scholarly community. More generally, Linnér is trying to show how Borgström's ideas—and the ideas of other neo-Malthusians—were vital to the development of a coherent environmental ideology.

A third wave of Malthusian warnings emerged in the late 1990s. Linnér describes this most recent cycle as the product of discursive arguments employed by large plant-breeding corporations to promote their genetically modified (GM) crops. In the author's view, biotechnology companies like Monsanto, Pioneer, and Novartis have revived Malthusian rhetoric in the hope of gaining public support for GM crops. For example, Monsanto's public relations literature ominously warns: "World population is soaring, yet the amount of arable land available for food production is diminishing. New agricultural technology has never been more urgently needed" (page 203). This is an interesting argument, and Linnér should be credited for pointing out the duplicity of this rhetoric. He shows how the bulk of biotechnology research has been, and continues to be, directed towards crops for Western markets. Yet, for the last decade the biotech industry's primary arguments center on feeding the world's poor.

Linnér's focus on the discourse of the biotech industry causes him to overlook a larger, more significant source of neo-Malthusianism in the 1990s; namely, the extensive research conducted throughout that decade on the issue of environmental scarcity and conflict. Research by Thomas Homer-Dixon's (1991, 1994, 1995) project at the University of Toronto, Günther Baechler's (1998) project at

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the Swiss Peace Institute, and a number other organizations on the potentially violent consequences of the depletion of renewable natural resources reintroduced neo-Malthusianism into the political discourse in the 1990s.[1] This research, communicated to policymakers through a few highly influential articles, put neo-Malthusianism on the post-Cold War map.[2] This research set the stage for the biotech industry to use a Malthusian discourse.

This point highlights the one shortcoming of *The Return of Malthus*: its failure to engage with the large and pertinent literature on the security implications of environmental change. In fact, the readers of this journal will be surprised to learn that Linnér never refers to Homer-Dixon or Baechler. Nor does the book reference those who criticize some environmental security texts as overly Malthusian. This is a strange omission, since Linnér had already made the scarcity-security connection in his discussion of the immediate post-World War II era. Why not explore whether those same dynamics were at work immediately after the Cold War, when the environmental security research agenda took shape? One wonders if Linnér, who has carefully analyzed Malthusianism from a historian's perspective, would classify key thinkers like Homer-Dixon as neo-Malthusian.

This shortcoming, however, hardly dilutes the power of *The Return of Malthus*. The book is a strong work of scholarship that demonstrates that population-resource debates date back much further than those taking place within the environmental security community today. And it demonstrates that Malthusian thought—right or wrong—has had a powerful effect on the development of the environmental movement.

Notes

1. To be sure, many of the scholars associated with these projects would renounce the Malthusian label. But the connection these researchers make among growing populations, dwindling resources, and frequently bleak outcomes gives much of this work an undeniable Malthusian cast. On the Malthusian nature of Homer-Dixon's work, for example, see Peluso and Watts (2001).

2. For a detailed analysis of how the environmental security paradigm took shape see Richard Matthew (2002).

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Scarcity and Surfeit: The Ecology of Africa's Conflicts

Jeremy Lind and Kathryn Sturman (Eds).
Pretoria, South Africa: Institute for Security Studies, South Africa, 2002. 388 pages.

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In the past decade, the links between natural resources and violent conflict—particularly in the resource-rich but conflict-ravaged countries of Africa—have garnered increased attention. Controversial research, led by Paul Collier and his associates at the World Bank (see, for example, Collier et al., 2003), argues that conflicts are more likely to be caused by economic opportunities—greed—rather than grievances. This argument contrasts with earlier studies, such as those by the Ted Robert Gurr (1968; 2000), which argue that social, political, and economic deprivation, inequities, and grievances are the main causes of political violence. The August 2005 issue of *Journal of Conflict Resolution* contains a series of articles exploring and critiquing aspects of the resource-based explanations of violent conflict (e.g., Ron, 2005), illustrating the importance of understanding such links.

Jeremy Lind and Kathryn Sturman, editors of *Scarcity and Surfeit: The Ecology of Africa's Conflicts*, have compiled six case studies in two volatile regions of Africa, the Greater Horn (Somalia, Ethiopia, and Sudan) and the Great Lakes (Burundi, Rwanda, and the Democratic Republic of the Congo). The contributors challenge the distinction between greed and grievance, naming structural inequalities, resource mismanagement, and predatory states as among the principal causes of conflict. While the quality of the case studies is uneven, the authors all agree that resource-based factors play an important role in sustaining conflicts in Africa. At the same time, they carefully emphasize that ecological issues are rarely the main causes of civil discord.

The chapters on Rwanda, Burundi, and Somalia persuasively examine how economic issues, particularly land distribution, play significant roles in conflicts traditionally viewed as driven by ethnicity. Jean Bigagaza, Carolyne Abong, and Cecile Mukarubuga argue that Rwanda's political violence was greatly influenced by competition to control scarce land. Unfortunately, peace-building attempts in the region (e.g., the Arusha peace process) placed undue emphasis on the ethnic dimensions of the conflict. As a result, the remedies focused on institutional solutions such as sharing power, holding elections, and adjusting the ethnic composition of the armed forces. These efforts lacked concerted attempts to tackle unequal land distribution, the decreasing international value of agricultural commodities, and deepening rural poverty.

The Burundi case study makes a similar argument. Like Rwanda, Burundi must cope with the problem of land scarcity, which is accentuated by the country's dependence on its main natural resource, coffee. The Burundi state is predatory and rent-seeking; controlling the state means controlling coffee production and export. In Somalia, too, the interplay between local and

national competition for land influences politics. To help build peace, all three countries need greater consideration of land usage patterns and policies that emphasize sustainable natural resource use and management.

The war-ravaged Democratic Republic of the Congo (DRC) illustrates the tragedy of the "resource curse." Though the country is richly endowed with high-value natural resources, 70 percent of its population lives in absolute poverty. Celine Moyroud and John Katunga investigate the deleterious effects of coltan extraction, which is concentrated in the eastern part of the country.[1] While coltan extraction is not the sole—or even primary—cause of conflict, it is an aggravating factor, as it contributes to environmental degradation and tensions over land ownership and utilization—and generates revenues for rebel groups. The authors provide some interesting insights into the politics of natural resource extraction in DRC; for example, trade in coltan is controlled almost entirely by Rwandan brokers. Policymakers might benefit from heeding the chapter's suggestions. For example, the authors favor an international code of conduct to monitor the extraction and purchase of coltan, but they also argue that this issue must be addressed within the wider context of the conflict.

Writing on Sudan, Paul Goldsmith, Lydia A. Abura, and Jason Switzer counter identity-based interpretations of conflict by arguing that resource mismanagement, exploitation, repression, and the absence of community participation in decision-making have all sharpened divisions in the country—to the point that conflicts would have occurred even if the country's people shared one religion. While the authors challenge ethnicity-based explanations of civil war, a clearer discussion of the role of environmental factors, such as the availability of water or oil and the specific links between their exploitation and conflict, would have strengthened the chapter.

Fiona Flintan and Imeru Tamrat examine the role of water scarcity in exacerbating conflicts in Ethiopia, underlining the importance of local capacity in resolving or mitigating resource-based conflicts. Community elders and religious leaders manage access to and distribution of resources. According to traditional norms, clan resources are often shared in times of resource scarcity or stress. Clan leaders also help adjudicate conflicts and appeal to the government in the event of larger conflicts. Traditional peace-building institutions have worked with the government to hold peace conferences in the Afar region. In addition, women often act as mediators between competing clans and play important roles in conflict prevention and resolution. While the authors provide some fascinating insights, the article needs a tighter focus on the impact of water issues on the situation, and an analysis of the strengths and limitations of localized conflict management efforts, particularly in disputes between Ethiopia and Eritrea.

The case studies compiled in this volume persuasively argue that structural inequalities, particularly land distribution, are key determinants of conflict in Africa. Rather than blaming violence solely on opportunistic criminals, these studies examine how state power can become an arena of conflict over material resources. Many of the authors suggest that building local capacity to effectively utilize resources would be a useful way to challenge predatory states. A close examination of local or national initiatives that have contributed towards peacemaking and peace building would help these efforts.

The causal process of conflict is complex, and, as these case studies make clear, environmental factors are only one dimension of political violence. By examining how resource issues can harden ethnic divides (or vice versa), we can enhance our understanding of the interplay of conflict's economic, social, and political determinants. However, we need more systematic empirical research to understand the precise role of resource-based issues. In the concluding chapter, Richard Cornwall calls for more critical and innovative research on the subject. Indeed, attempts to prevent, manage, and resolve conflicts can greatly benefit from efforts by the research and policy communities to understand, as clearly as possible, the role of ecology in conflicts in Africa and elsewhere.

> The contributors challenge the distinction between greed and grievance, naming structural inequalities, resource mismanagement, and predatory states as among the principal causes of conflict.

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Notes

1. Coltan (short for columbite-tantalite) is a key ingredient in capacitors for cellular phones. The technology boom caused the price of coltan to soar, but it settled down after 2002. However, other resources have since become new targets (see Balint-Kurti, 2005).

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Twenty-First Century India: Population, Economy, Human Development, and the Environment

Tim Dyson, Robert Cassen, and Leela Visaria (Eds.)
Oxford: Oxford University Press, 2004. 414 pages.

Reviewed by TOUFIQ A. SIDDIQI

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The comprehensive and excellent book *Twenty-First Century India: Population, Economy, Human Development, and the Environment* is the outcome of a research project "designed to examine the nature and consequences of the future growth of India's population" (page vii). The book's editors—Tim Dyson and Robert Cassen of the London School of Economics, and Leela Visaria of Delhi's Institute of Economic Growth—have achieved this ambitious goal.

The volume's 16 chapters can be grouped into 3 sections. The first describes past, present, and future trends in India's population growth, while the middle section examines the implications of this growth for education, employment, poverty, and the economy. The last third of the volume outlines major challenges that India faces in meeting its requirements for food, water, and energy, as well as the implications for the environment. The final chapter discusses the lessons learned, and suggests policies to address these challenges. The 14 authors, most of them based in the United Kingdom (the rest
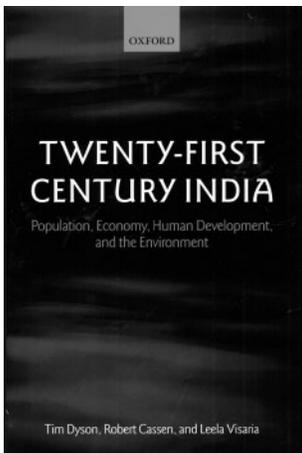
mainly in India), bring a variety of disciplinary backgrounds to bear on the topics, resulting in a rich diversity of approaches.

Past, Present, and Future Trends in India's Population Growth

With a current population of more than 1 billion, it is hard to imagine that India had only 251 million people in 1921. Due to high mortality from infectious and parasitic diseases, epidemics, and famines, preceding centuries witnessed only a small growth rate (Visaria & Visaria, 1982). Improved health care led to a rapid decline in mortality after 1921, and attention turned to the country's high birth rate. Consequently, in 1952 India became the first country to officially adopt a family planning program, but it was not until the 1990s that the birth rate began to fall significantly faster than the death rate.

The chapter "Mortality Trends and the Health Transition" provides tables detailing not only the overall death rates during the last part of the 20th century, but also the impact of specific communicable diseases, such as tuberculosis (TB) and typhoid. The resurgence of malaria, the spread of drug-resistant TB, and the rapid rise in HIV/AIDS indicate that despite considerable progress communicable diseases are still major contributors to mortality.

Many of the book's tables provide state-level data rather than country-level aggregates—a particularly useful feature in a country as vast as India, where regions differ considerably. Policies must be designed to take social, cultural, and economic differences into account. In his chapter on India's future population, Dyson projects a total population of about 1.4 billion by 2026 and more than 1.5 billion by 2051. Uttar Pradesh and Bihar (in their former borders) will continue to have the largest populations during the next 50 years.

Education, Employment, Poverty, and the Economy

The much-discussed "outsourcing" of software and other services to India by the United States is one indicator of India's enormous progress in providing quality education to ever-larger numbers. The overall literacy rate has climbed to 65 percent, but a third of the population is still illiterate. As in many other developing countries, poorer children and girls have access only to lower-quality schooling. *Twenty-First Century India* provides a wealth of information on education-related topics, such as school attendance and literacy rates, in various states and age groups.

Although the Indian economy grew fairly rapidly during the 1990s, unemployment has also increased, due to privatizations of state enterprises and the introduction of modern technologies, among other factors. Kirsty McNay, Jeemol Unni, and Cassen, in their chapter on employment, estimate that eight million people will join the work force every year for the next 20 years. Even if the Indian economy grew by eight percent a year during that period, unemployment is still likely to increase—a serious and growing problem that policymakers should address.

Poverty is defined these days not only as lack of income, but also as lack of education, health care, and other important components of the quality of life. The analysis undertaken in the education chapter confirms the prevalent view that inequalities in many fields are large and growing, both within and between states. In their chapter on education and literacy, Geeta Gandhi Kingdon, Cassen, McNay, and Visaria conclude that five large states—Bihar, Madhya Pradesh, Orissa, Rajasthan, and Uttar Pradesh—suffer more than their fair share of poverty, inadequate health care, and malnutrition. They also find large gaps between religious groups, and between the mainstream population and cultural minorities.

During the 1990s, India's economy increased about six percent per year; the states of Gujarat and Maharashtra grew the fastest, with Rajasthan not far behind. In the chapter "The Economy, the Past, and the Future," Shankar Acharya, Cassen, and McNay ascribe this growth to the states' reform of infrastructure, industrial policy, and investment incen-

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tives, which echoes the conclusions of other analysts (e.g., Bajpai & Sachs, 1999). They also address a question seldom explicitly discussed: how might environmental degradation affect economic growth? The authors estimate that India's annual losses due to environmental damage range from 2-9 percent, depending on different estimates of the impacts on human health and the value assigned to human life.

Major Challenges

Twenty-First Century India also addresses the opposite and more traditional concern: the impact of economic growth on the environment. Based on the results of a model that links real GDP to emissions from energy production and use, Dennis Anderson makes five propositions:

- Addressing environmental problems will improve, not reduce, India's economic prospects;
- If environmental policies were in place, the "population effect" would be relatively small;
- The worst environmental problems affect the lowest income groups the most, and environmental policies will therefore help them the most;
- Technical progress, and policies that induce it, are the most important factors in promoting growth along with improving the environment; and
- Environmental problems should be addressed sooner rather than later.

Anderson provides case studies to support these propositions, and uses computer simulation models to predict emissions of pollutants under various scenarios. His findings are generally in agreement with those of several other studies (e.g., Grubler, 1998; Pachauri & Sridharan, 1998). He recommends eliminating subsidies for rural electrification and for coal-fired and nuclear power, which would not only provide economic benefits, but also help reduce the pressure on groundwater resources.

As in other rapidly growing developing countries, India's environment has deteriorat-

ed—particularly in the urban areas—due mostly to the use of fossil fuels for transportation, power generation, industrial activities, and domestic needs. Many of India's largest cities rank among the most polluted in the world. The chapter "India's Urban Environment, Current Knowledge, and Future Possibilities" predicts that these negative trends—as well as the problems of municipal solid waste, sewage, and shortage of safe drinking water—will continue, and that environmental quality in urban areas will become increasingly problematic for India.

Water, agriculture, and food are closely related. While short, the chapter on water by Bhaskar Vira, Ramaswamy Iyer, and Cassen addresses several important issues, including the possible effects of climate change. Climate modeling is still not precise enough to predict the magnitude and direction of changes in rainfall and temperature at the state level, but such changes will likely occur by the middle of this century. Thus, policymakers should begin contingency planning soon. Many parts of India already suffer water shortages, especially during the dry months, which have led to conflicts between states and between end-users. The authors summarize the demand for water through 2050, concluding that India can avoid a water crisis if appropriate supply- and demand-side measures are adopted in time.

The chapter points out that some states' policy of providing free water and electricity has led to overuse of surface and ground water. Political parties have been unwilling to incur farmers' wrath by eliminating or reducing this costly subsidy. Since water comes under the jurisdiction of the state rather than the central government, the latter can only intervene in the cases of rivers that flow across state borders.[1]

Cereal production in India has increased faster than the population during the past 50 years. In "Prospects for Food Demand and Supply," Amresh Hanchate and Dyson assert that this trend may continue for the next few decades, if some policy changes, such as increasing the price of water and electricity, can be implemented. While this may be true for the

As in other developing countries, implementing policies in India that create some hardships will take time, education, and a social safety net.

country as a whole, over a long-term horizon, regions can fluctuate considerably from one year to another. Global climate change could also affect future cereal production.

Common pool resources (CPR)—which include fuel wood, fodder, crop wastes, cow dung, organic manure, and small timber, as well as local fisheries and water for drinking, cooking, and irrigation—are closely linked to India's rural economy. Vira's chapter on CPR describes the conflicting claims on these resources by, for example, the forest product and chemical industries.

Lessons Learned

In the final chapter, "Lessons and Policies," the editors outline the policies that they consider to be especially important for meeting India's challenges. While the government has already articulated policies and legislation for the issues discussed in the book, difficulties arise in their implementation. Policymakers in many developed as well as developing countries face this problem, so it is no surprise that the authors offer no magical solutions. For example, while many parts of India suffer from water shortages, the agriculture sector uses a great deal of water, which is essentially provided free of charge. No political party is willing to advocate charging money for water, for fear of being voted out in the next election. Similarly, closing down a factory for polluting—even temporarily—is likely to lead to widespread demonstrations and strikes. As in other developing countries, implementing policies in India that create some hardships will take time, education, and a social safety net.

Despite the lack of new policy recommendations, *Twenty-First Century India* is an insightful and comprehensive book that should be of great value to academics, policy advisors, and researchers interested in exploring the demographic and sustainable development challenges facing the second most populous country in the world.

Notes

1. Readers interested in examining these issues in greater detail should refer to a number of recent works, such as Shiva (2002) and the two volumes edited by Siddiqi and Tahir-Kheli (2004, 2005).

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