



CONFLICT, CO-OPERATION AND GLOBAL ENVIRONMENTAL CHANGE: ADVANCING THE AGENDA | BY SIMON DALBY



► **Current concerns with conflict, cooperation and environment, summarized** under the label „environmental security“, come from a policy and scholarly debate that grew out of heightened environmental concern in the late 1980s and the publication of „Our Common Future“ – the report of the World Commission on Environment and Development in 1987. The initial policy discussion took for granted that environmental degradation was a large scale problem, and that it was one that post-cold war security planners ought to take seriously. The social science literature has long suggested that matters are much more complex. Identifying a number of stages in the historical evolution of the debate allows us to see this complexity while also understanding how the debate has evolved to its present focus on the possibilities of cooperation in the face of global change.

ENVIRONMENTAL DEGRADATION AND CONFLICT

First, there was an initial concern to identify environment as a threat in terms that were broadly similar to the formulations of cold war security discourse. Whether this was in the United States, or in the Soviet Union, where environmental security became a matter of considerable importance in the final years of the Gorbachev administration, instabilities and disruptions to society as a consequence of environmental problems were the dominant theme. In particular there was a widespread assumption that there would be wars over water, a vital resource, that was supposedly becoming increasingly scarce. All this suggested that „security“ was an appropriate policy lens through which to discuss environmental change.

Second, there was a substantial literature in social science trying to formulate an appropriate empirical validation of the basic contentions that environmental matters would cause conflict. Thomas Homer-Dixon's teams of researchers, what became known as the Toronto school, posited a series of complex links between environmental scarcities

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and social responses, which they argued, when coupled to other political factors, such as weak states with inadequate capacities for resource management, appropriate infrastructure provision or conflict resolution would likely lead to overt conflict. Homer-Dixon's attempts to establish a plausible series of causal links between environmental scarcity and conflict showed how complicated such causes were and suggested clearly that war between states was unlikely over environmental matters. The Toronto school's approach met with objections from other scholars concerned that the methods were not proving anything given the selectivity of the case studies. Calls for comparison cases and null hypotheses appeared in the pages of scholarly journals and books, especially from those more interested in the general discussion of the causes of wars, rather than a specific focus on environment.

The supposed causal link between environmental scarcity and political conflict is exemplified in the debate over water. It is especially important when linked to concerns about global climate change and disruptions of rainfall patterns and evaporation rates. Supposedly in the face of scarcities and disruptions, states vying for control over specific rivers will fight to secure access to supplies of fresh water. But empirical research into the matter suggests that, 'water wars' have been very rare and are generally unlikely. Few states are so tied to the waters of a river that the extreme dynamics of interstate warfare unfold when water shortages happen. The pitfalls of conflict that might destroy shared infrastructure essential to both sides are much greater than any possible benefits of going to war. The water wars debate has made it clear that vulnerabilities are a complex matter, but also that environmental change presents numerous possibilities for cooperation.

Two examples make this clear. The Aral Sea is a classic case of both environmental degradation and consequent resource shortages. The large scale diversion of water for cotton irrigation and the consequent reduction of the volume of water in the sea lead to the death of most of the fish populations that provided many local livelihoods. The states that emerged from the former Soviet Union and which surround the lake have not gone to war over this matter. Not only have they cooperated with each other, but have actively invited assistance in international institution building that has incidentally helped build national institutions too. Another recent example of the attempts to resolve difficulties in the case of Lake Victoria suggests a dramatic alternative to the resource war scenarios. The need to curtail over-fishing in the lake and the importance of remediation has encouraged cooperation; scarcity leading to conflict arguments have not been common in the region and they have not influenced policy prescriptions. Many conflicts over the allocations of water use rights continue around the world but most of them are within states and international disputes simply do not have a history of leading to wars.

MALDEVELOPMENT, POLITICAL ECOLOGY AND RESOURCE WARS

The third approach to environmental security came from the Swiss Peace Federation which sponsored a large project that included many case studies looking at violence and environment in a lot of places. The ENCOP project, directed by Gunther Baechler, linked environmental conflicts to problems of

maldevelopment and a spreading, disruptive influence of commercial societies. Most explicitly, ENCOP (The Environment and Conflict Project) suggested that the integration of the poverty ridden marginal lands in mountainous regions and more remote areas of Africa on the margins of major ecological zones were the most likely locations for environmental conflict. But there were other dimensions to the relation of environment and conflict too, not least the damage done to specific environments and local peoples by the dislocations of major development projects. The struggles by indigenous peoples to protect rainforests and other lands from oil wells and mining corporations are part of this larger pattern.

A fourth approach, that of „political ecology“, focused much more on the political economy of resources and in particular the complexity of local resources intersecting with the global commercial economy. Showing how local power structures, gendered access to farm land, traditional modes of subsistence agriculture and fishing were overlain with new modes of resource extraction, this literature challenged the arguments about scarcity in the neo-Malthusian formulations while not denying that some environments were indeed violent. This critical literature has made very clear that the complexities of the global economy have to be factored into local vulnerabilities, and that this has to be done with considerable care to ensure that the specifics of local circumstances are appropriately incorporated into the analysis. Both global environmental change and economic change matter in explaining local vulnerabilities.

This discussion links to a fifth literature, which in the late 1990s suggested that resource shortages were not correlated with conflict. The converse, it was suggested was the case. The „new wars“ of the 1990s in the South were tied into the struggle to control the rents from resource streams that were being exported to the global economy. Controlling resources, whether timber, diamonds or oil, was the way to get rich quick, rather than follow the painful and slow routes of economic development. Elite rivalries and the promise of wealth are, so the argument goes, powerful incentives to initiate hostilities, especially where tribal or other sectoral loyalties can be mobilized. But these wars were not largely about either subsistence lands or the politics of agriculture. While their extraction and consumption may have environmental consequences, apart from tropical timber, most of these resources are not „renewable“ resources, so their inclusion within a discussion of „environmental security“ may not be technically appropriate, this perspective is a useful addition to the discussion because it emphasizes the importance of globalization and resource extraction in the discussion of violence and human insecurity.

GLOBAL ENVIRONMENTAL CHANGE AND HUMAN SECURITY

This links to a sixth approach, one summarized in the term Global Environmental Change and Human Security (GECHS) which in many ways offers a synthesis of the lessons learned in the other approaches. Vulnerabilities of populations to changing environments, and specifically concerns with the impact of global change, is the driving force in many of these studies. The welfare and survival of people and their environments is the key focus of research in contrast to the earlier focus on states and potential wars. This overlaps in part with the ENCOP concerns

with human development and its focus on the juxtaposition of violence with the parts of the world that have the worst scores on the UN human development indices. It emphasizes the importance of understanding the complexity of both environmental and social processes in specific contexts, and the obvious point that the poor in rural areas are frequently most vulnerable to both environmental change and the disruptions caused by political violence.

In parallel with the focus on human security as a necessity in the face of both natural and artificial forms of vulnerability, recent literature has emphasized the opportunities that environmental management presents for political cooperation between states and other political actors, on both large scale infrastructure projects as well as more traditional matters of wildlife and new concerns with biodiversity preservation.

In some ways the discussion has come back to where it started in the 1980s, focusing on the vulnerable populations in the South and their need for a broadly understood human security. But what has changed is that simple assumptions of environmental degradation or resource scarcity leading to conflict are no longer accepted. Vulnerability is now understood as a complex problem; cooperation is understood as more likely than violent conflict in the face of environmental change. The connections between violence in the South and consumption in the North is also part of the analysis now, both due to the direct links through resource wars and the less direct impacts of climate change.

Understanding the specific circumstances of human vulnerability in different places is important and has become part of the discussion. Environment, development and human security are understood as parts of the same issue. But while it is clear that solutions have to be tailored to fit local circumstances it is also now understood that neither global change nor globalization can be ignored. Environmental changes are not strictly „local“ phenomena triggering „local“ social responses. Human insecurity is context dependent, but context is not simply a matter of local phenomena.

The good news from the contemporary literature on environmental security is that scholars now increasingly understand the importance of these links between human activity and natural processes at a variety of interconnected scales. Protecting people and places now go together. The GECHS approach emphasizes the importance of policy cooperation across boundaries linked to a recognition that peoples and landscapes are interconnected, and hence vulnerable to global change in ways that make it important to plan protection of both environments and biodiversity on the one hand, and peoples and their livelihoods on the other, as part of a single cooperative process.

The challenge for contemporary research is how to turn these insights into practical innovations in specific places – innovations that reduce human vulnerability by enhancing ecological resilience, while simultaneously providing sustainable forms of livelihood in a rapidly changing global economy. ▼

REFERENCES to this article are included on the IHDP website at www.ihdp.org/updateconcop04/references.htm

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MANAGING CHANGE IN THE OKAVANGO BASIN

BY ANTHONY R. TURTON & ANTON EARLE

► The Okavango River basin is home to about 600,000 people, over half of whom live in the Angolan portion of the basin. Namibia is home to 160,000 people in the basin, with the remainder living in and around the Okavango Delta in Botswana (Mendelsohn & Obeid 2004). The two main tributaries, the Cubango and the Cuito, rise on the Bie Plateau in central Angola, where average annual rainfall is over 1000 mm a year, and flow south towards Namibia. The Cubango (Kavango in Namibia) forms the border between Angola and Namibia and joins the Cuito after about 300 kilometres. Shortly after this the unified river traverses Namibia's Caprivi Strip – becoming Namibia's only perennial river wholly on its territory. The Okavango River does not flow into the sea, terminating instead in Botswana as the Okavango Delta (average annual rainfall of about 400 mm a year)



A Russian battle tank lying in a mine field between Menongue and Caiundo

where it is swallowed up by the sands of the Kalahari Desert and „lost“ to evapotranspiration.

About 10 cubic kilometres of water drain into the Okavango delta every year. At present very little of this flow is taken out of the river as there are no dams or major water pumping schemes on the river – yet. As such it is the one of the last relatively pristine rivers in Africa, giving it an internationalized character as there are many stakeholders interested in the sustainable management of the river other than the three riparian states. The main economic value of the water is in the delta where it contributes to a unique biodiversity that sustains a large tourism industry. Revenues from tourism in the delta exceed US\$ 250 million annually, or roughly 10 percent of the Botswana GDP. Current activities using water from the river in Namibia include small to medium-scale irrigation projects, fishing and fish farming. As it is Namibia's only perennial river, there has been talk of transferring water to Windhoek for industrial and domestic use. The other potential increase in water use from the river is in Angola. The end of the Angolan civil war will accelerate development in the basin, probably requiring more water.

These developmental needs run into a range of local and international interest groups aiming to conserve what they perceive to be the „fragile and unique“ ecosystem of the river, specifically in the delta. The result has been to thrust any mention of development of the river into the realm of politics with claims & allegations, some factual & others not, being made by the various stakeholders involved. It turns out that the system is not „fragile & unique“ as is claimed, but rather an enduring and dynamic system that is essentially driven by long-term variability. The Okavango River is a resilient system, which responds and adapts to the various changes and „threats“ it has encountered over time. However, it is important that the resilience of the system is protected and that any future development is planned in such a way that it does not rob the system of its ability to respond to change. For this to become a reality a high degree of social and institutional adaptive capacity is needed. Adaptive capacity of these human systems in the region is relatively low due to a lack of economic resources and political instability (specifically in Angola), while human vulnerability is high due to poverty and the reliance on rain-fed agriculture – exacerbated by the recurrent cycle of floods and drought (IPCC, 2001).

Effective sustainable management of the system calls for decisions to be based on legitimised data and knowledge. The three basin states formed the Permanent Water Commission on the Okavango River (OKACOM) in 1994, with the mandate to act as a technical adviser to the riparian governments on issues related to conservation, development and use of the water resources of the basin. Although no agreements regulating the use of the water between the states have been signed, the Commission is generally seen to be operating effectively, but fears of unilateral action by any one riparian state and the absence of a unifying basin-wide database hamper the effectiveness of the institution (Turton & Earle, 2003). The Okavango River system needs to be well understood for water managers to respond to the pressures and challenges faced – a challenge given the highly dynamic nature of the ecological drivers and the limited adaptive capacity in the region.

Southern Africa is characterised by temporal as well as spatial climatic variability – droughts and floods follow on from each other with relatively few years of what can be called „average“ rainfall. The Okavango Basin is no exception. Since records of inflows to the delta began in the early 1930s flows have varied from –45% to +60% of the mean annual flow (Ashton & Neal, 2003). Since the 1980s there has been a downward trend in flow volumes into the delta, although the 2004 season is set to be one of the biggest flow events in the past 35 years. These variations appear to be natural, but anthropogenic factors cannot be ruled out as part of global climate change. Unfortunately flow and rainfall records in Angola were not maintained during the almost 30 years of civil war – a gap in the data which will never be

recovered, making accurate predictions on climatic changes over the past half century difficult. Given the highly dynamic nature of the ecosystem however, this data sequence is far too short to really develop a profound understanding of changing weather patterns over time.

By looking at layers of sediment and sand dune formation in the region, as well as periods of intense plant growth, it is possible to reconstruct an approximation of the rainfall pattern of the past 200,000 years. What emerges is a series of cycles taking about 23,000 years for each to complete (Mendelsohn & Obeid 2004). Rainfall during the wettest cycles would have been higher than today, while during the driest cycles much of the system as we know it would have been covered in sand.

Frequently the assertion is made that the climate is changing – usually that it is becoming drier as a result of human activities. The only constant in the climate of the region over the past 200,000 years has been change – if by „climate change“ a change in this rate or direction of change is meant it will be difficult to predict the outcome. According to the Intergovernmental Panel on Climate Change (IPCC) study conducted in 2001 the Okavango River headwaters region on the Bie Plateaux falls partly in a zone predicted to experience a decrease in runoff of 50 to 150 mm per year and partly in a zone predicted to experience an increase in runoff of 1 to 25 mm per year (IPCC, 2001). Most of the predictions about the direction of climate change in the region have a low to medium level of confidence. However there is a high level of confidence in the prediction that the southern African region generally will experience greater climatic extremes leading to an increase in the severity of the floods and droughts in the Okavango basin.

The inherent climatic variability and any change in the natural cycles brought about by global climate change need to be incorporated into development and management plans on the basin. On a local level little can be done to prevent such change – but the management regime can become adapted to managing a changing system. This poses a challenge to OKACOM, the River Basin Commission responsible for developing a management strategy for the whole basin. One of the implications is the fact that predictions are likely to be difficult to make, raising the spectre of vulnerability. The two downstream riparian states – Namibia and Botswana – have endemic water scarcity, and could face limitations to their economic growth and prosperity in the near

future. This raises the stakes at the strategic level and tends to politicize management. This is not necessarily a bad thing however, as politicization usually leads to the creation of institutions in which policy options can be debated and solutions generated. The alternative is securitization, which has negative implications because such an approach would move the management of the river basin into the realm of security

officials, stifling open debate, preventing data-sharing and limiting the range of strategic options from which sustainable & equitable solutions can be sourced.

The conflict potential needs to be institutionalised through the adoption of a shared vision of how the resources of the river are going to be managed sustainably. The three states will have to build on the trust

between them and arrive at an agreement of what constitutes a „fair and equitable share“ of water and benefits from the river, based on a sound understanding of the hydrology, ecology and development needs in the basin. To do this OKACOM will need to incorporate more than just the representatives of the departments of water affairs of the three states. Other departments dealing with issues such as rural & agricultural development, trade and industry, tourism, environment and energy need to be brought into the process in addition to including community stakeholders such as the Okavango Basin-wide Forum (a collection of basin-community representatives formed through the Every River Has its People project). Each of the stakeholder groups listed above will have an impact on the ability of the Okavango River and delta to respond to climate change, as well as being impacted by the nature and extent of such change.

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Photos: AWIRU

Aerial view of the Menongue showing a tributary of the Okavango river. The unpopulated areas in the photo are minefields.

GLOBAL BIODIVERSITY AND CONFLICT RESOLUTION

THE POSSIBLE ROLE OF PUBLIC PRIVATE PARTNERSHIPS

SUSANNE STOLL-KLEEMANN AND TIM O'RIORDAN

PERSPECTIVE

► **Biodiversity is under threat. Yet safeguarding mechanisms are chronically insufficient both in effectiveness and funding.** This paper looks at possible roles for the private sector in meeting current and future safeguarding needs. It concludes that the private sector can work well for highly specialised and emblematic aspects of biodiversity planning, mostly for large animals. But it cannot do the job for comprehensive biodiversity enhancement, especially when resident populations are also dependent on the totality of ecosystem services.

Leakey and Lewin (1996) liken the current onslaught to global biodiversity to a „Sixth Extinction“, the possibility of a major collapse of species and habitats at a rate 1000 to 10 000 times higher than natural background changes. Previous recoveries from mass extinction took place leisurely under natural circumstances. Today it is different. Nearly seventy per cent of the current land surface is either partially or wholly disturbed by human beings. Add to this the almost certain prospect of climate change, the chances of re-colonization of lost species and habitats over the coming century by any other means than through careful management is impossible. Global biodiversity cannot be maintained without a wholesale change in the way in which we govern our planet.



Myers (2002) estimates the cost of protecting the global hotspots, namely the highly diverse zones of ancient natural systems, at the order of 300 million dollars per year. To safeguard all protected areas would amount to an annual spent of some 500 billion dollars. These figures may appear large, but should bear in mind that the expenditure behind agricultural subsidies alone amount to 365 billion dollars per year, and US spending on military security beyond its borders exceeds 450 billion dollars annually. Much more to the point is that biodiversity investment, if well managed, will aid local livelihoods, increase tourist revenue, and stimulate the economic value of ecosystems.

INTRODUCING PRIVATE SECTOR PARTICIPATION

The international conservation community has begun to recognize the need for significant private sector involvement in biodiversity governance. The World Summit on Sustainable Development (WSSD) championed a number of initiatives around the theme of the Type 2 partnerships. These

partnerships are multi-stakeholder in construction and explicitly involve public, private and community interests. They are designed to be complementary to official inter-governmental and governmental commitment, and not to be a substitute for public sector responsibility in this area.

The World Parks Congress in 2003 also endorsed the notion of private sector financing for biodiversity governance. While the resolutions from this Congress indicated caution over the guarantees for the well-being of local people, nevertheless the thrust of the declaration was for more private sector investment coupled to improve procedures for monitoring and surveillance.

Given that there is little sign of international financial commitment on the scale now regarded as vital, there is growing recognition that the private sector may provide a vital financial service for the maintenance of biodiversity on a global scale. But the current state of affairs remains ambiguous about the wisdom of this approach. Without clear and explicit governance

practices, that lock the public, private and civil sectors into a common purpose, it is unlikely that private sector financing can guarantee global sustainable biodiversity provision. For this to be the case there needs to be a different set of measures for evaluating the effectiveness of such agreements. We need to address how far the private sector can promote the cause of global sustainable biodiversity.

THE CONFLICTS BETWEEN THE PRIVATE SECTOR AND SUSTAINABLE BIODIVERSITY

There are a number of reasons of why private sector funding can lead both to a distortion in global sustainable biodiversity management, and to long-term instability and conflicts over the future promotion of biodiversity enhancement:

– *The promotion of the emblematic species.*

Private sector providers aim to promote the protection and access to species which visitors wish to see. While this is a worthy objective for species protection, it cannot guarantee the maintenance of a robust and integral ecosystem. This is particularly the case where additional areas of safeguard are necessary to act as „ecological stepping stones“ for future species migration. Because of the need to maintain revenue, this mismatch of objectives can result in a weakened biodiversity and inherent conflict between conservationists and economic enterprise.

– *The failure of corporate social responsibility.*

There is much fashionable talk nowadays of companies promoting and complying with the practices of corporate social

responsibility (CSR). There is an assumption that good corporate practice can lead to a public interest dimension in the profit-maintaining world of corporate enterprise. The concept of Type 2 partnerships is designed to shadow official biodiversity protection, as a means of integrating private enterprise to local interests and public sector regulation. Hamann and his colleagues (2003) show that CSR is by no means regarded by business as a genuine public interest activity. It should not be surprising that businesses only adopt CSR practices to promote their business case. There is no guarantee that, as matters currently stand, CSR will be used as a vehicle to promote global sustainable biodiversity through the private sector.

– *Conflict over management objectives.*

The private sector generally regards biodiversity as a suite of services over which it has proprietorial control. Such a view conflicts with the property relations of food and agricultural services sought by local people and local enterprise. It may also create an impasse over appropriate regulatory arrangements over long-term property rights. Any programme of designing indicators of effective biodiversity governance may well stumble over these contested property arrangements.

– *Short vs long-term perspectives.*

To maintain and create sustainable biodiversity requires a commitment for the very long-term. It is well known that changes in the value of ecosystem services would force the private sector into a kind of survivalist mode. This cannot guarantee sustained biodiversity investment. Add to these changes in the character of agricultural markets, and local use of biodiversity products might also become unstable. Public-private-community partnerships appear to have no rules for maintaining the integrity of ecosystems during changing economic and political circumstances. Again any indicators of permanent biodiversity governance would need to address mechanisms for stabilising property rights and values over the long-term.

EXPERIENCE FROM CASE STUDIES

We introduce two case studies from Brazil and South Africa.

– *Brazil: Continuing Conflict over Bioprospecting*

Egler (2002) reviews the history of private sector involvement in promoting biodiversity enterprise in Amazonia. In 1995 the National Programme for Biodiversity (PRONABIO) created a non-profit-private fund (FUNBIO) to support projects in the sustainable use of biodiversity and biotechnology products. The value of such products in 1998 lay between 500 and 800 billion dollars. The cosmetic industry sought to establish an active programme of research and development in order to capitalize on this market. In 1997 the programme for biotechnology in the Amazon (PROBEM) was established with joint government-private sector funding. This programme was to be implemented by BIOAMAZONIA, a social organization specially established to ensure a favourable balance between private initiative and the public interest. But PROBEM is facing huge legal and political difficulties. There is no clear mechanism to provide access to genetic resources as required by the Convention on Biological Diversity (CBD). In the absence of appropriate legislation the government could not hire bioprospecting activities from any private entity. This meant that PROBEM

had no basis for trading. BIOAMAZONIA was charged with a conflict of interest when seeking to promote private sector advantage in this sensitive arena of local livelihoods and contested property rights. The result was a major break down of trust between BIOAMAZONIA, the Brazilian Congress, and



international environmental organizations. In the end the Presidency passed a provisional law regulating access to biodiversity in favour of the private sector. The use of an autocratic instrument to regulate a sensitive and complex matter inflamed public aversion to BIOAMAZONIA. The outcome of this is deeply unsatisfactory. A body established to foster trust between long-term public interest in biodiversity management and medium-term private sector investment with potentially large gains for local people has foundered. This reinforces our view that without clear guidelines for the effective monitoring and accountability of these partnerships there can be no sustaining biodiversity governance.

– *South Africa: Another conflict over bioprospecting*

A deal between the South African National Botanical Institute (NBI) and the American Biotech firm called Ball Horticultural Company was signed in order to generate revenue for the Institute arising from the bioprospecting of the genetic mix of the fynbos, a hot spot of extraordinary plant species in the southwest of South Africa. Under the CBD, bioprospecting should safeguard the fair and equitable benefits between the country of origin and the importing organization. Because the U.S. has not ratified the CBD any public-private agreement required a political approval. This was not put in place before NBI signed up with Ball. The result was reported through a leak to a local newspaper and caused a huge outcry. A subsequent official investigation (Glazewski 2001, 5) showed that Ball had effective access „to all South African species as well as the knowledge built up by NBI and South African botanists over the centuries“. Moreover, Glazewski found that the agreement gave no assurances that Ball would invest directly in technology transfer in South Africa. This story suggests that government agencies, restricted in funding and with resource limitations on achieving their objectives, may be attracted by offers of private sector funding to the point where they sell short on sustainable biodiversity. Unless the private sector has a genuine private interest concern, unless there is an explicit and accountable regulatory regime, and unless there is constant vigilance and a courageous press, there can be no guarantee that private sector involvement will deliver.

CONCLUSIONS

We face a dilemma. The inter-governmental community is failing to provide adequate public sector financing in the midst of a possible Sixth Extinction. Measures to incorporate local community involvement in global biodiversity governance are now officially on all agendas. Yet, it may be necessary to rely on private sector financing just to keep the ship afloat for the time being. This means we must address how best we can establish public-private-community partnerships for a sustaining biodiversity age.

– *A global biodiversity stewardship scheme*

As with the Forest Stewardship Council and the Marine Stewardship Council, there is a need for a Global Biodiversity Stewardship Scheme that locks public to private to local informal arrangements based upon sustainability principles. Ultimately such a scheme should provide the necessary conditions for the sale of any product or service from any established biodiversity setting.

– *Formal corporate accountability*

Corporate social responsibility (CSR) on a voluntary basis is simply not good enough. There must be some form of corporate accountability that is mediated by community compliance, and agreed measures of managing biodiversity to meet the collective needs of local livelihoods and ecosystem integrity. This can only be achieved by establishing unambiguous indicators of effective biodiversity governance backed by the triple alliance of the biodiversity stewardship scheme partnerships.

– *Political and corporate leadership*

Right now we live in a world where political and corporate leaders are not delivering sustainable biodiversity governance. Only when the global community envelopes these leaders with positive messages relating to the long-term superior advantages of investing collectively in biodiversity will these leaders readjust their attention. There may be no substitute for other than a programme of systematic monitoring and support to show why sustainable biodiversity governance is the best bet for all parties, and our future generations. Here is where sustainability science must join with these global biodiversity stewardship partnerships to provide the scientific insights that should underpin these measures of effectiveness. To underscore the significance of these measures, they should be robust enough to provide the legal and management basis for the global biodiversity stewardship scheme to be as strong as it must be if we are to avoid a possible Sixth Extinction.

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HUMAN SECURITY IN THE NORTH: IS IT RELEVANT?

THE SECURITY DEBATE

► **The meaning and efficacy of security concepts has long been debated.** The domination by international systems and nation-state perspectives on security has effectively marginalized most other notions of security. A widened security agenda that goes beyond the stereotypical military (usually synonymous with security) needs of the state has often been proposed, but frequently against the critique that the coherence of the concept becomes lost, such that security becomes meaningless and all „motherhood and apple pie“. Nevertheless, widened notions of security have been a particularly hot topic since the end of the Cold War. State-defined security, particularly revolving around the political and military sectors, has been perceived as too narrow, elitist and insufficient, and other sectors of security have been introduced. Economic, personal, community environmental, health, food and societal securities, often encapsulated within „human“ security, have been recognized as important sectors of the security dynamic, as have new security referents, such as the individual through human security, as well as the region (linking and transcending states, providing individuals and groups alternative venues in which to voice securities, alongside regional expressions of security).

HUMAN SECURITY: NORTH VERSUS SOUTH?

Ever since the notion of human security was broadly popularized through the 1994 UNDP Human Development Report, it has been often employed by the United Nations and by states around the world, in particular by northern states interested in promoting human security in the Global South. This has led to criticism that the concept entrenches linear and elitist thinking with regard to security, insofar as it is implied that countries of the Global North have no experiences to share with the Global South, and that the North remains secure, while the South is not.

The end result is an imbalance between understandings of what is actually happening within and across regions, and the assumptions of „North-secure, South-insecure“ serve to disguise and prevent shared human security concerns and experiences. This is well exemplified through indigenous and gender experiences and perspectives which transcend the North-South construct and reveal human insecurities occurring on different levels, to different degrees, throughout the world. These perspectives have not, however, been actively engaged within the dominant security discourses. The same can be said for examining security from the level of regions; although there is an increasing awareness that regional secu-

rity is as relevant as the security of the international system, the north, and particular the Arctic, is not commonly included in discussions of regional security.

NEW RESEARCH DIRECTIONS

These alternative perspectives emanate from security referents other than the state, and are often described as expressions of security from the „bottom up“, and new research programs have been emerging reflecting these widened approaches to security. The Human Security Program (HSP) at the University of Tromsø, Norway, contributes to these debates by exploring gender and indigenous perspectives of security within the Arctic regional context. Both the context and theoretical perspectives examine security from the „bottom up“.

The theoretical dimension of the HSP primarily draws on western and non-western feminisms, as well as indigenous perspectives (including indigenous or aboriginal feminisms) to understanding security. This approach does not negate current, more traditional theoretical approaches to security. Nor does it negate the state as an important component of security; expressions of security can and do transcend boundaries, but responses to it are often very much state or institution based. As such the HSP builds upon these foundations in the interest of demonstrating the complexity of the security concept.

ABORIGINAL FEMINISM AND HUMAN SECURITY

A central advantage to listening to various feminisms, especially those rooted in indigenous cultures and traditions, is the expressions of the inherent linkages between the environment and other securities expressed by these voices. Indigenous feminisms give expression not only to needs of indigenous women to freely express themselves in their communities and challenge patriarchal privilege, but seek to give voice to women's personal and cultural oppression within colonized and subordinated communities. As such, to give voice to these oppressions additionally expresses indigenous women's needs for securities. Culturally, economically and socially environmental security is not a distinct or separate issue, but an integrated core of these securities. Environmental issues therefore become inevitably and inherently linked to the security dynamic and have an impact on, as well as are impacted by, all other securities. This is particularly true in the Arctic, where the voices expressing these security concerns are often not heard.

THE ARCTIC AND HUMAN SECURITY: AN EXAMPLE

The Arctic has long been a peripheral region of the Global North (for the purposes of this article the Arctic is defined as the circumpolar region, although there are many contested notions of what constitutes the Arctic and/or the north). As a region free of large scale violent conflict, it has not been the focus of human security researchers. However, it is becoming more apparent that to take human security seriously, issues of the Arctic need to be taken into account. The Arctic is still considered „pristine“ and provides a clear and region-wide demonstration of the linkages of diverse securities, particularly rooted in environmental security. The impacts of environment and environmental security upon the women and men of the Arctic are clear and significant:

for example, persistent organic pollutants (POPs), mercury and lead that emanate from the polluting activities of the industrialized south primarily through air and water, are ingested by humans through traditional country foods, causing numerous health problems such as increased rates of breast cancer and problems with pregnancy, the possible reduction of testosterone/increase of estrogen in men with impacts on their fertility and gender, and neurological damage in children.

As a result, warnings against traditional country foods has led to decreased consumption but also to a clear reduction in the health benefits of these foods, as well as their social, cultural, and economic significance to the communities. Increased dependence upon store-bought foods and market as opposed to traditional economies has had impacts on food availability and access, the development of diseases such as diabetes, the weakening of traditional economies and access to hunting equipment necessary to these economies, as well as poverty. A 2004 report by Marcelle Chabot chronicles the problems of poverty, hunger and starvation in Kuujuauiut households in Nunavik, Canada where she noted that women and children were most at risk for material and food security; amongst the general population already 68% were at risk, but this number increased to 71% for women and 74% for children (Chabot, 2004). Access to income is limited, compounded by debt and substance abuse, all of which contribute to these high rates of insecurity amongst the Kuujuauiut.

In general, limited access to income is a chronic problem amongst women in the north as many women have had to rely on public sector employment which has been steadily reduced over the years, and have had less access to natural resources employment such as mining, forestry and oil which employs mostly men. It is nevertheless almost impossible to isolate one security from the other. In this region we find an intricate blend of security issues from the environmental, health, and food to economics, cultural and identity (high rates of suicide associated with loss of culture/identities among indigenous peoples, traditional economies struggling against market economies, reduced access to market economies, and so forth).

It is clear that recognition of human security issues in northern contexts is imperative to the development of the concept as a whole, as well as to eliminating the 'us-them' othering approach inherent within such notions. Listening to and understanding the experiences of women and men in the north and particularly the Arctic, through the lenses of various gender and indigenous perspectives, highlights the limitations northern peoples face in meeting their security needs. Recognition of shared human insecurities between North and South leads to better definitional clarity, and better policy making on behalf of all parties concerned.



REFERENCES to this article are included on the IHDP website at www.ihdp.org/updateconcop04/references.htm



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THE LEMPA RIVER BASIN: TRANSBORDER COOPERATION IN AN INTERNATIONAL RIVER BASIN WITH HIGH POTENTIAL FOR CONFLICT

► The Lempa river basin encompasses an area of about 18 246 square kilometers and is divided by the international boundaries of Guatemala, Honduras and El Salvador. The Lempa river shows that in an scenario of high potential for conflict, such situation has not occurred, instead a process of transborder cooperation is taking place. Thus, the key question is how an acute process of environmental change (such as the one in the Lempa river basin) can promote transborder cooperation instead of conflict? Before all, it is important to recognize that an international river basin does not provide a good foundation for regional cooperation simply by virtue of its crossing national borders. The Lempa river basin shows that the relative dependence of each riparian on the river is an important determinant of the potential for conflict or cooperation. Greater interdependence among riparians and the generation of externalities increases the necessity and possibility of international cooperation.



THE POTENTIAL FOR CONFLICT

When considering the potential for conflict in the Lempa river basin, three elements can be considered: Geography, environmental change, and resource dependence. In terms of geography the physical location of countries within a river basin influences the potential for environmental

conflict. El Salvador occupies the lower reaches of the Lempa basin and is located downstream of Guatemala and



Photos: Proyecto Tiffinio/GTZ

Honduras. A full ninety percent of El Salvador's river basin surface area lies downstream of its two neighbors and is highly subject to damage from upstream activities.

In addition, natural resources degradation is seen by the high levels of erosion affecting dams and reducing their life. The production of sediments is high. 48% of the sediments in the Lempa river originate in Honduras, while El Salvador and Guatemala generate 39% and 13% respectively. (Hernández and Rodríguez: 2002: 25) Because of its downstream position, El Salvador must bear the brunt of the environmental and economic impacts of soil erosion. Indeed, four hydroelectric dams in El Salvador have lost portions of their generating capacity due to accumulated sediment deposits.

Second, in terms of environmental change the Lempa river basin is the most environmentally damaged and polluted international river basin. One of the most significant sources of deterioration is the discrepancy between land use capacity and its effective use – more than half of the land in the watershed (almost 9 500 km²) is over-used. Of all land area in the three countries classified as over-used, 58.4% lies in El Salvador, while the remainders of the over-used areas are located in Honduras (23.3%) and Guatemala (18.3%) (Granados, 2002). The consequences are severe erosion upstream and sedimentation downstream.

Finally, dependency is the third factor influencing the potential for conflict. Because of its downstream location, El Salvador feels the greatest impact of the Lempa river's

deterioration. The effects of environmental damage are further magnified when one considers that El Salvador is heavily dependent on the Lempa relative to Guatemala and Honduras. In fact, there is no other country in Central America that relies on a single river as heavily as El Salvador does on the Lempa.

For example:

- 48% of the Salvadorian population lives in cities, towns, and villages that are located in the Lempa basin. These include the capital city of San Salvador.
- The Lempa basin covers 49% of the territory of El Salvador. In contrast, only 4.9% of Honduras and only 2.3% of Guatemala lie in the Lempa basin.

In conclusion, a conflict scenario such as the following could be considered: if environmental degradation persists, it will become a major threat against hydroelectric power generation and water sources for El Salvador. In such a situation, very possibly, El Salvador will demand action on the part of its neighbors and may generate regional unrest.

COOPERATION INSTEAD OF CONFLICT

Nevertheless, the above elements conflicts have not occurred. Instead, an scenario of transborder cooperation is taking place – why is that?

In the case of the Lempa river basin three factors explain the reduction for conflicts. First, the socio-economic and environmental interdependence; second the role of no point sources; and finally the existence of institutional arrangements – all of them are creating partnerships between neighboring countries and help to reduce the potential for conflict.

Socio-economic interdependencies: The economies of the countries in the Lempa basin are highly interdependent. After the United States, Guatemala and El Salvador are the



second and third most important export destinations for Honduras. Similarly, El Salvador's second and third most important export destinations are Guatemala and Honduras respectively. External trade aside, there is also a great

deal of interaction among local populations. The boundary area between Honduras and El Salvador is the largest popu-



lation center in Central America. The inhabitants are linked economically and socially and have demonstrated a willingness to work together to protect their own interests.

The role of no point sources: Although most environmental changes in the area rather trigger conflict, there is one aspect that reduces conflict potential. This is the diffuse characteristic of the damage, meaning that the sources of environmental change are not mainly concentrated in one country. For instance, the main factors causing damage in the upper reaches of the basin have their origin in farming and the direct discharge of domestic wastes into the river. Both activities are widely spread.

Institutional arrangements: A third element (perhaps the most important) for diminishing the potential for conflict is the development of institutional arrangements such as the Trifinio Plan and its latest component, the management plan for the upper basin area of the Lempa River. In 1997 the Trinational Commission was established by the vice-presidents of the three countries. This was followed by the signing of the Treaty, implying legal international status to the commission. This was a crucial moment because it provided the commission with a real institutional framework from which to develop the Trifinio Plan. The commission as a regional institution started in 2000, with its headquarters located in San Salvador and its technical unit in Esquipulas, Guatemala.

It can be argued that, as a result of the Plan Trifinio, there has been a strengthening of the border links which has led to a strengthening of all levels. Through these activities the level of coordination between the three governments has increased. In the same way, the process of integration among border communities has been spurred.



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