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Unsustainable Development - Somalia

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CHRISTIAN SCIENCE MONITOR

"End Environmental Extremism" -- Op-ed by Cato Institute's Doug Bandow (p. 18)

===== CALENDAR =====

*30 WEEK OF JANUARY 31 - FEBRUARY 6

1 -- SOMALIA: The Environmental and Energy Study Institute sponsors a briefing on "Unsustainable Development and the Crisis in Somalia," featuring ecologist Bruce Byers at 10 a.m. in the Rayburn House Office Building in Washington, DC. Contact: Hayes McCarthy at (202) 628-1400.

2 -- ECOTOURISM: The Smithsonian Institution, Smithsonian Magazine and the American Society of Travel Agents sponsor "Winning Ways: Tourism and the Environment Is Good Business" at 5 p.m. at the institution's International Center in Washington, DC. Contact: Michelle McMahon at (202) 768-2900.

3 -- POLICY: Resources for the Future sponsors "Choosing a Sustainable Future: The Report of the National Commission on the Environment" featuring RFF's Terry Davies, exec. dir. of the commission, from 12 noon to 2 p.m. at RFF in Washington, DC. Contact: Chris Mendes at (202) 328-5067.

5 -- NAFTA: The Environmental and Energy Study Institute sponsors "The North American Free Trade Agreement and the Environment" at 10 a.m. in the Rayburn House Office Building in Washington, DC. Contact: Hayes McCarthy at (202) 628-1400.

5-6 -- LITIGATION: The American Bar Association sponsors the "Fifth Annual Midyear Meeting" of its Environmental Litigation Committee at the Silvertree Hotel, Snowmass at Aspen, CO. Contact: John Barkett at (305) 373-5200.

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ENVIRONMENTAL AND ENERGY STUDY INSTITUTE

NOTICE

KEN MURPHY, EXECUTIVE DIRECTOR ■ 122 C STREET, N.W., SUITE 700, WASHINGTON, D.C. 20001 ■ (202) 628-1400

UNSUSTAINABLE DEVELOPMENT

AND THE CRISIS IN SOMALIA

**Monday, February 1, 1993
10 a.m., 2226 Rayburn House Office Building**

The crisis in Somalia has multiple causes, but one major cause is environmental degradation caused by short-sighted development projects.

You are invited to a briefing on the roots of the Somalian tragedy with Bruce Byers, an ecologist and member of the Ecological Security Commission of the International Peace Research Association, which is an international applied science peace research association.

By tracing the path of development within Somalia from the time of colonial rule, Byers concludes that the loss of the traditional nomadic herding culture has contributed to growing urban populations, overgrazing, soil erosion and desertification. The clan-based political institutions which effectively governed a pastoral population are incapable of governing an urban population with an export-driven economy, he says.

The practice of giving aid exclusively to Somalia's cities and agricultural sector should be changed, argues Byers. Byers believes the priority for aid should be on the rural, pastoral sector. In addition, he urges that the causal links among unsustainable development, environmental degradation and conflict must be understood if a similar crisis is to be averted in the future at home or abroad. Byers is currently an American Academy for the Advancement of Science, Science and Diplomacy Fellow in Washington, D.C.

For further information, contact Ms. Hayes McCarthy at (202) 628-1400.



OPINION

In the international effort to assist Somalia's reconstruction, the focus of aid should be on the rural, pastoral sector, not on the cities

Roots of Somalia's Crisis

By Bruce Byers

THE belief that the vast human tragedy in Somalia will finally end now that American troops are restoring order and speeding the delivery of relief supplies assumes that political anarchy and clan feuding are the cause of the violence and starvation there.

This assumption may be correct, but shortsighted. A long-term view is that the crisis is caused, not by a temporary breakdown of Somali political institutions, but by a century of economic "development" that was disastrous for Somalia, both ecologically and socially.

Unsustainable "development" began in Somalia at the end of the last century, when Great Britain and Italy imposed colonial economic systems on the traditional nomadic herding culture. The British redesigned the pastoral subsistence economy to produce a surplus of livestock for export to the port of Aden. This commercialization of the pastoral economy expanded during the colonial era, and still more after Somalia became independent in 1960. Since 1955 exports of sheep, goats, and cattle have increased at least tenfold, and of camels twentyfold. Livestock now account for about three-fourths of the country's export earnings. This production of a surplus of animals has led to overgrazing, soil erosion, and degradation of Somalia's range lands.

After Somalia became independent, well-meaning international development aid paid for the drilling of wells in the arid range lands. This frequently induced nomads to settle around the wells, which in turn led to local overgrazing and desertification. Such "development" showed little or no understanding of the ecological sophistication of traditional pastoralism.

Ethiopian expansionism also changed nomadic life for Somalis. Between 1887 and 1904 the Ethiopian Emperor Menelik conquered the Somali-inhabited

Ogaden region. With the concurrence of the British and Italians, national borders were drawn up, splitting the ecologically and ethnically uniform region between Ethiopia and what later became Somalia. The result is an unnatural border that has restricted the traditional migrations of Somali herders to this seasonally lush region.

The settling of nomads increased population growth in Somalia. One demographic study found annual population growth rates of 1.7 percent among nomads, 2.2 percent among settled people, and 4.9 percent among city dwellers. The country's overall population growth rate is now about 3 percent a year. At this rate, the current population of

'Development' has exhausted the resilience of Somali society.

about 7 million people will double in less than 25 years.

The current Somali conflict is also a legacy of the cold war. Because of its strategic location near the oilfields of the Middle East, both superpowers formed military alliances with governments in the Horn of Africa, and poured weapons into the region for almost four decades.

Rapidly growing populations of settled pastoralists and their growing herds have placed unprecedented stress on Somalia's natural environment. According to reports by the US Agency for International Development and the World Conservation Union (IUCN), this has led to overgrazing, soil erosion, desertification, and excessive fuel wood cutting that is destroying the remnants of Somalia's originally scarce woodlands. This ecological stress in turn fuels conflict between pastoralists over grazing rights and access to water sources for herds, and between farmers and pastoralists along Somalia's rivers. It reduces people's ability to cope with drought, and increases migration to cities. In general it reduces options for rural people and increases support for local

warlords as a way of competing in a scramble for diminishing ecological resources.

Unsustainable "development" has exhausted the ecological and social resilience of Somali society. Clan-based political institutions may have been suitable for governing the relations between pastoralists in a sparsely settled land, but they seem to be incapable of governing well, now that the ecological setting in which they evolved has been so radically changed by the imposition of an export-oriented economy, dramatic population growth, environmental degradation, and a flood of modern weapons.

Sending troops to restore "order" to Somali politics will not be enough. The lawless gangs must be controlled and the clan fighting must stop, of course. But the way to address the root causes of the tragedy is to assist Somalia in healing its land, curbing the growth of its population, restoring its pastoral economy, and meeting the needs of its own people first. In the international effort to assist Somalia's reconstruction that will hopefully follow the initial effort to restore political order, the temptation to make Somalia's cities and agricultural sector the focus of aid must be resisted. The focus should be on the rural, pastoral sector.

It may take another century to heal the human-human and human-land conflicts and restore an ecologically sustainable balance between the people and the natural environment. This will require a long-term vision, not "band-aid" solutions. Ecologically and socially unsustainable economic "development" will eventually cause conflict in any country. We must understand the causal links between unsustainable development, environmental degradation, and conflict and devote substantial resources to promoting environmentally and socially sustainable development both at home and abroad.

■ Dr. Bruce Byers, an ecologist, is a member of the Ecological Security Commission of the International Peace Research Association.

THE WALL STREET JOURNAL.

Sustained Aid Can Prevent Somalias

WSJ
AID
Tues
12/24/92

By JIMMY CARTER

Although we have sent troops to Somalia, we are sobered to realize that Sudan, Bangladesh, Sri Lanka, Mozambique, Liberia, Haiti, Angola, Burma and almost two dozen other nations also cry out for international assistance to find peace or food. Civil wars usually develop when neighbors contend for dwindling supplies of food, water, arable land, or a modicum of human dignity. Freedom, justice and human rights are usurped by the powerful with weapons, to whom these concepts are meaningless or anathema.

International troops cannot be rushed to all war-torn and starving countries to preserve fragile cease-fires or to control war lords who postpone looting until foreign soldiers depart. Timely assistance is often the answer here, not troops. Most international aid agencies and bilateral programs are nearly 50 years old. Their own leaders acknowledge that huge bureaucracies are delivering assistance with appalling inefficiency. Realizing this, those of us with wealth to share have become increasingly averse to doing so. In America, "foreign aid" is becoming a profane phrase, almost politically suicidal for a member of Congress to utter approvingly.

This has led to neglect. The facts are truly disturbing. In 1990, \$880 billion was spent world-wide on weapons and preparations for war, 15 times the total of all nonprivate development assistance. Military purchases by the poorest nations have quintupled in the past three decades, so that they are now almost triple humanitarian aid received. Amazingly, only 7% of bilateral assistance and less than 10% of

multilateral aid is for education, health, clean water, shelter, sanitation, family planning and nutrition.

Third World foreign debt skyrocketed during the 1980s. When I left the White House there was a net transfer of about \$35 billion annually from industrialized to less developed nations. Now, mostly for servicing debt, the net flow is \$60 billion from the poorest to the richest countries. The most destitute people labor and exhaust their mines and forests in vain. Total annual exports of Somalia, Mozambique and Sudan will not service their debt.

Despite its great need, Africa has been hit especially hard in the loss of development assistance. Compared with 1990, aid from all countries in 1991 declined \$1.3 billion (11%). Finances from the World Bank group dropped \$600 million (15%), and soft development loans (International Development Agency) fell by \$780 million (60%). International Monetary Fund loans plunged 42%. This lost support is particularly counterproductive in the increasing number of countries moving from war to peace and from despotism to democracy. European countries respond best to these needs, with France and the Scandinavian countries giving from 0.25% to 0.36% of their gross domestic product in aid to Africa in 1990. (The U.S. contributed 0.02%.)

Part of the problem is with the aid organizations. Hundreds of well-intentioned international agencies, with their own priorities and idiosyncrasies, seldom cooperate or even communicate with each other. Instead, they compete for publicity, funding and access to potential recipients. Overburdened leaders in developing coun-

tries, whose governments are often relatively disorganized, confront a cacophony of offers and demands from donors.

Since its inception in 1961, the U.S. Agency for International Development's effectiveness has been diminished in two major ways. First, a disproportionate number of staffers are based in Washington, rather than in developing countries. Fewer than 38% are career development officers and more than half of these are in Washington. Second, some 80% of all "economic support funds" are spent in Egypt and Israel alone. Further, Congress micromanages the agency's budget, earmarking nearly two-thirds of all "development assistance" funds, thus allowing virtually no flexibility for the agency to direct money where it is needed.

Following a workshop at the Carter Center in October 1989, the Carnegie Corporation established a Task Force on Development Organizations to seek solutions to these problems. This month, U.N. Secretary General Boutros Boutros-Ghali and I convened leaders of private lending and donor organizations, officials of developing countries and representatives of the Bush administration, Congress and the Clinton transition team to evaluate these ideas. Some of our recommendations:

1. Convene a task force sponsored by private foundations to ensure a neutral forum for coordinating aid programs. Include recipients in this task force.

2. Assign a representative donor group to assess each recipient country's humanitarian needs, debt burdens, and policies concerning economic reform, democracy, human rights, environmental issues and weapons purchases.

3. In nations seeking aid, create a council of government officials and representatives of business, agriculture, tourism, consumer and environmental groups to help ensure that all development needs are balanced.

4. Reduce corruption. At our conference, World Bank representatives reported that an organization is being formed to detect, publicize and eliminate bribes to venal officials.

5. Maximize use of science and technology.

6. Assess successful projects, particularly small-scale private ones, so we can emulate them.

7. Let locals do it. Whenever possible, citizens of the recipient nation should carry out the projects. A Guyanese business leader said, "Give us the responsibility and let us do the work."

After our conference, Guyana's president and business leaders and Ethiopian officials offered to try the ideas in their countries. With strong support from the White House, the United Nations, and other key donors, these reforms can be implemented. Only then will we see sustainable development adequate to prevent future Somalias.

President from 1977 to 1981, Mr. Carter oversees international policy programs from the Carter Center in Atlanta.



PVO-NGO/NRMS PROJECT

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Washington, D.C. 20037

*Private Voluntary Organizations and Non-Governmental Organizations
in Natural Resources Management*
(a USAID-funded project)

Unsustainable Development and the Crisis in Somalia Discussion Points

**Prepared by: Michael Brown
Project Director
PVO-NGO/NRMS Project**

**February 1, 1993
10 a.m., 226 Rayburn House Office Building**

Several key questions are raised by the synopsis of Bruce Byer's presentation:

Questions

* Has "traditional" Somali nomadic herding culture been "lost" as Byers suggests (leading to overgrazing, soil erosion and desertification) or has it simply been transformed into a more diversified culture?

* How much are development projects to blame for environmental degradation which is suggested has been a cause in the recent crisis in Somalia?

The following personal views may be some potential points of departure in discussion:

* "Traditional nomadic herding culture" has not been lost in Somalia; Somali socioeconomic and sociocultural values are still very much alive. Somali culture has evolved into a more diversified, less ideal-typical "traditional" culture based on livestock raising alone.

* Somalis can not be categorized as either urban or rural per se; under non-anarchistic conditions (prior to the chaotic aftermath of the post-Siyaad Barre scramble for power) people move freely and often between the urban and rural sectors, and production systems and investment is based on rural/urban complementarity.

* As a point of context: appreciate that as recently as 10 years

ago, pastoral nomads in central Somalia had capital assets on the average -- herds of camels, cattle, sheep and goats in different ratios -- valued >\$100,000 per male headed household (reer) in the Jeddah, Saudi Arabia market. To achieve this Somalis have developed investment/production strategies that rely on people in the bush, in small urban rangeland centers, in large urban centers in Somalia, as wage earners in the Middle East Europe and in North America. The limits and mechanisms of the production system have simply widened.

* Man-made environmental degradation in Somalia has been declared by developers in the past on assumption more than empirical reality; in fact, empirical data from the mid-1980's on pastoral nomadism demonstrates that Somalis are extraordinary resource managers in the rangelands, with minor caveats.

* From a development assistance perspective attempting to get politics "right" is far more important than trying to get the environment "right", since Somalis do such a good job of the latter and so poorly with the former.

* Development projects have failed more in Somalia in the past by serving as conduits for promoting corruption and increasing political and social stratification between Somalis, than because of their specific content per se.

* Sustainable development activities specifically worth supporting in future development activities in Somalia are: (1) creating an enabling environment for Somalis to do what they do best - sustainably raise and sell livestock; (2) supporting an endogenous trend and help Somalis diversify social and economic opportunities in both urban and rural areas; (3) promoting processes which address "Somali diversity within Somali homogeneity" -- i.e. help Somalis adapt western democratic principles to their (if anything) "overly" democratic society; (4) support of satisfaction of **basic needs** in rural areas -- i.e. improved water supplies (hand dug/manual pump wells, improved water delivery systems at existing and new water points, increased seasonal water source infrastructure), equipped clinics, functional schools, all on a **widespread basis**.

* Tailor programs to meet local realities -- i.e. have communities prioritize potential activities -- and be prepared for the reality that social life is dynamic (today's enemy is potentially tomorrow's friend and vice versa).

* The major constraint to sustainable development in Somalia: conflict has always been part and parcel of pastoral culture and herding systems in Somalia. **Traditional conflict resolution mechanisms** for (a) avoiding conflict when it appears likely and (b) resolving conflict once erupted are no longer viable as military technology has outstripped Somali society's ability to

peaceably resolve conflict.

Pastoral sector conflicts over graze and water which were once successfully arbitrated through Somali sociocultural mechanisms are extraordinarily more difficult to resolve now that "diya" ("blood money") repayments in most instances may not be able to be made, and traditional authorities -- the odayaals, nabadoons, and grads -- may no longer enjoy the same respect as heretofore. **What is crucial for donors is to avoid supporting policies which will divide (instead of unite) Somalis.** To do this, Somali social dynamics and the role of conflict/resolution in Somali society must be understood.

* A possible solution to this: Work to reinstate conflict resolution mechanisms which are based on values of consensus regarding tenure/resource rights, but which are adapted to 20th century technological and social realities.

* Somalis strength lies in the non-stratified truly "democratic" nature of society; the lack of real chiefs also leads to incredible delays in decision-making. This however is the reality in a society which depends on true consensus to function.

* Clan was, is and probably always will be the predominant point of identification for Somalis. The challenge now is not to try (as once was done) to eliminate this reality, but to encourage and help Somalis to appreciate other overarching identity reference points as well. There is no reason ipso facto why this cannot be done in Africa's most ethnically homogenous society if key actors in the enabling environment do not allow themselves to be manipulated and in turn, do not support divisive policies which unwittingly reinforce Somali clan cleavages.

* For some time yet "bigmen" ("warlords" in the press) will try to wrestle away power one from the next. This is inevitable given the abusive precedents recent big men have established.

Ecoregions, State Sovereignty and Conflict

Bruce Byers*

University of Colorado

1. Introduction

In photographs taken from space, the diversity of the Earth's ecosystems can be distinguished as a mosaic of greens, blues, browns and white. The blue of the ocean gives way to terrestrial colors: deserts shade into grasslands, grasslands into forests, and forests into tundra or snow. Regional-scale ecosystem units – or ecoregions for short – have a visible reality. But the political boundaries of state territories are invisible from space. If they could be seen, superimposed on the ecological and geographical mosaic, perhaps there would be more recognition of the frequent incongruity between political and ecogeographical boundaries. In some cases, several states occupy parts of a single ecoregion; in other cases, states encompass more than one ecoregion. This paper explores some of the consequences of incongruities between the natural boundaries of ecosystems and the political borders of states.

I argue that this mismatching has the potential to stimulate conflict, and that mapping such incongruities can be a tool for predicting conflicts in time for preventive action. I also argue that preventing ecologically rooted conflicts requires some modification of state sovereignty. A beginning has already been made, especially in the direction of constraining some aspects of state sovereignty by international agreements in order to address regional or global environmental problems. More efforts are needed in the as yet neglected direction of de-

centralizing state sovereignty in order to resolve ecologically rooted conflicts.

2. Ecoregions

Fourteen major types of ecosystems, or biomes, can be recognized on land (Fig. 1). The Udvardy classification scheme used in Fig. 1 divides terrestrial ecosystems into 207 biogeographical provinces; in the marine realm about 40 faunal provinces are recognized.¹ Another recent classification scheme recognizes regional-scale ecosystem units, or 'ecoregions'.² These biogeographical provinces or ecoregions vary greatly in photosynthetic energy capture, species diversity, and extent.

Ecoregions or biogeographical provinces are reflections, in communities of organisms, of the physical parameters of climate, soil, and topography. They are a major basis for the designation of an 'ecogeographical region',³ although this concept includes a stronger geographical component, emphasizing river basins and regional seas as natural units.⁴ Another term perhaps closer in meaning to ecogeographical region than to biogeographical province or ecoregion is 'bioregion'.⁵

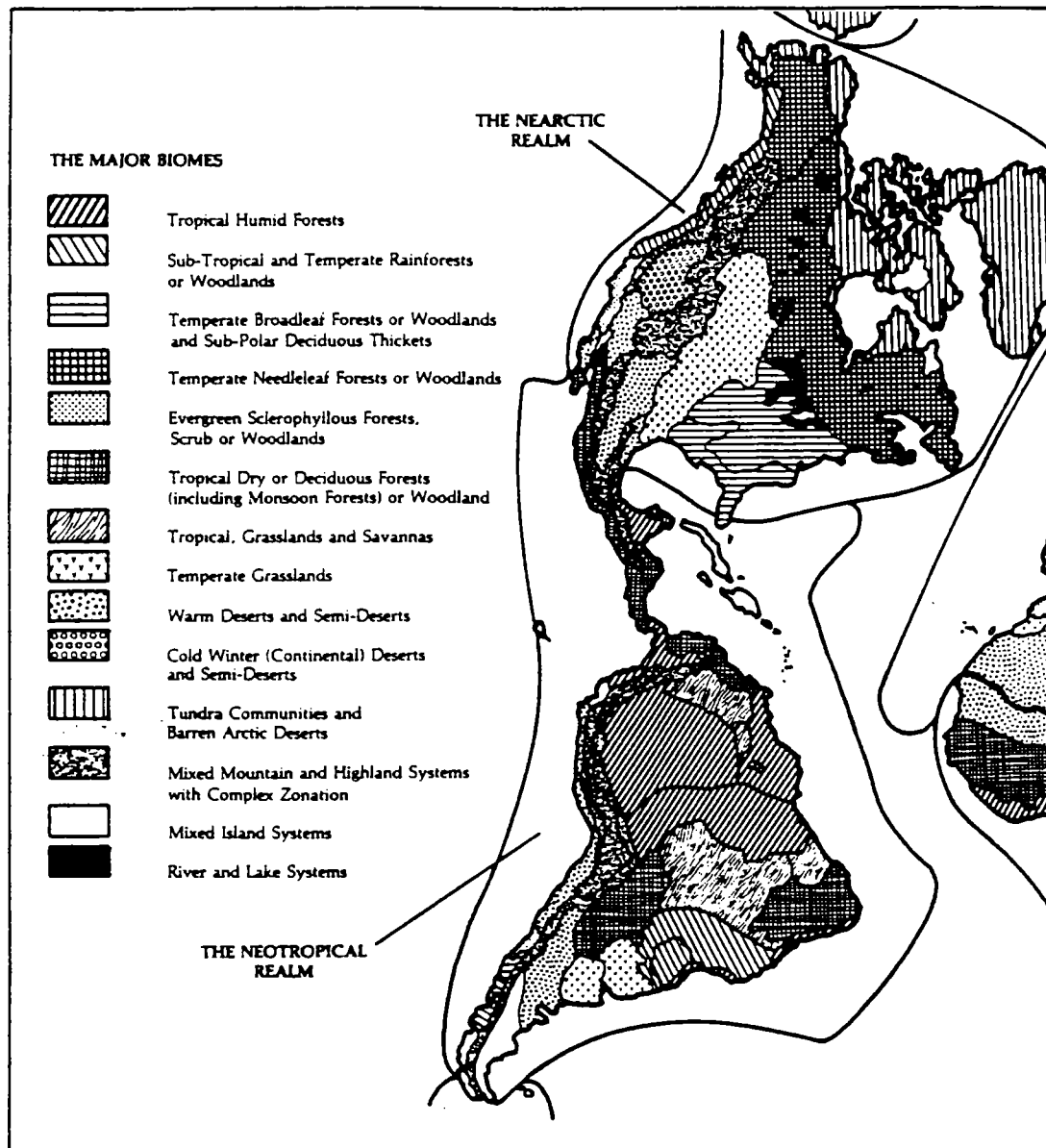
The boundaries between ecogeographical regions, although they are not sharp, nevertheless have considerable biological reality. As Westing has noted, 'An ecogeographical region functions to some considerable extent independently of the regions contiguous to it, of more distant regions, and of the globe as a whole.'⁶

3. State Territories

The world is divided into about 168 sovereign political states. Some of these are

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Fig. 1. Major Ecosystems of the World. Areas demarcated by lines within continents indicate separate biogeographic provinces. Biogeographic provinces are subdivisions of biological realms.

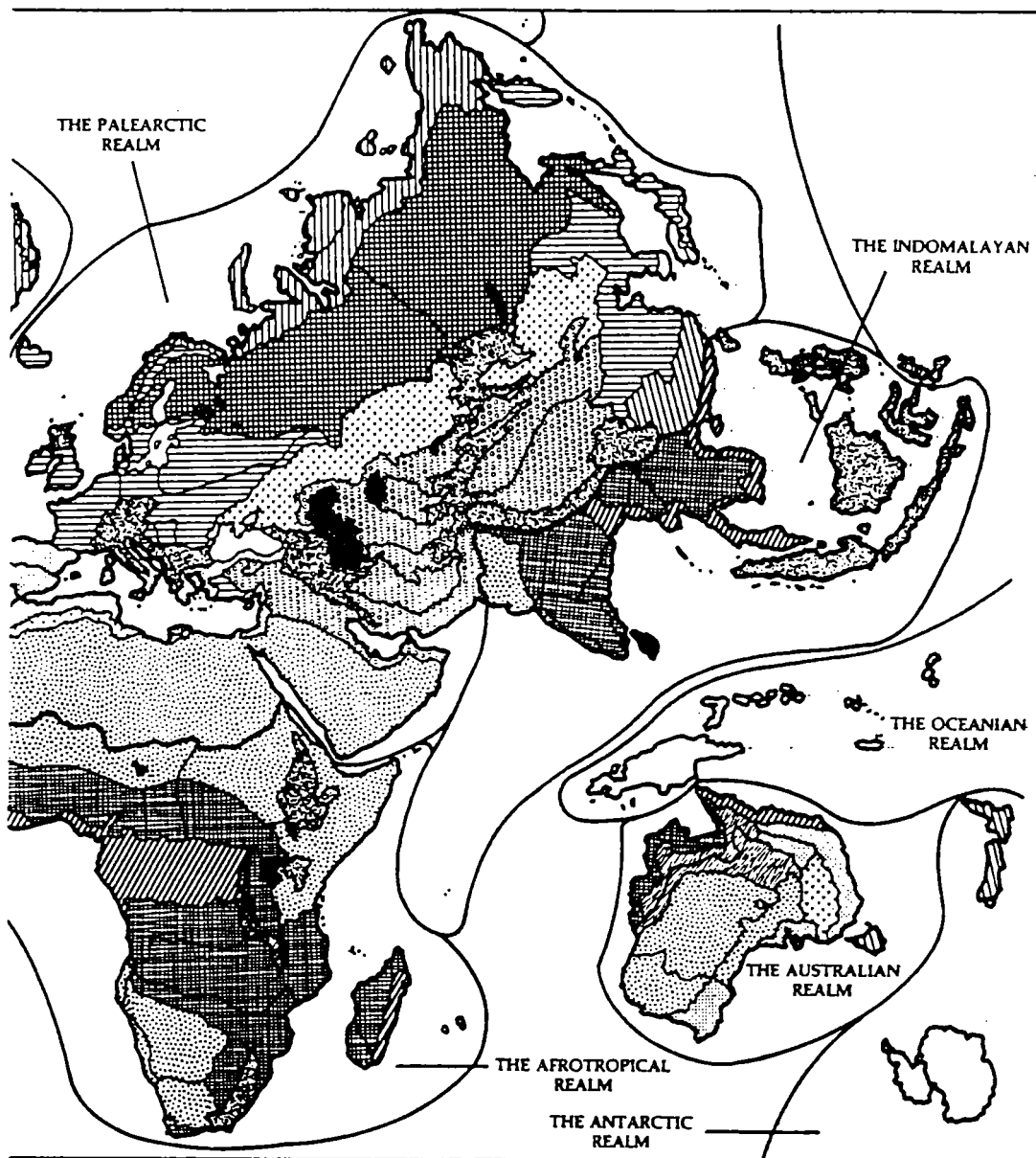


Source: Walter V. Reid & Kenton R. Miller, *Keeping Options Alive: The Scientific Basis for Conserving Biodiversity* (Washington, DC: World Resources Institute, 1989), pp. 74-75, used with permission.

geographical superstates, holding huge territories. The six largest states (Table I) control 45% of Earth's land surface; the ten largest control 52%!

In addition to these land territories, the Law of the Sea Convention of 1982 gives coastal nations limited sovereignty over 'exclusive economic zones' (EEZs) extend-

Fig. 1 (contd)



ing 370 km from their shores, so about 40% of the oceans are included in state territories. An interesting development resulting from the Law of the Sea Treaty is that some

island states have huge marine 'territories', or EEZs. For example, the Pacific island state of Kiribati – made up of 33 islands with a total land area of 819 km², and a popula-

Table I. Largest States and Their Ecological Diversity.¹

State	Land area (km ²)	Percent of total land area*	Number of biomes
USSR	22,287,892	14.9	7
Canada	9,928,122	6.6	6
USA	9,546,829	6.4	10**
China	9,409,081	6.3	7
Brazil	8,461,442	5.7	4
Australia	7,691,336	5.1	6
India	3,205,844	2.1	4
Argentina	2,768,502	1.9	5
Sudan	2,507,276	1.7	2
Algeria	2,383,130	1.6	3
(Antarctica)	14,007,057	9.4	1
(Greenland)	2,176,870	1.5	1
Total***	149,633,210	100.0	14

¹ Source of land areas: *Reader's Digest Wide World Atlas* (Pleasantville, NY & Montreal: Reader's Digest, 1984); biomes within each state visually determined from map reproduced in Fig. 1.

* Not including Antarctica and Greenland.

** Including Alaska and Hawaii.

*** Including Antarctica and Greenland.

tion of 60,000 – controls an ocean area of 4,980,863 km², an area larger than India!⁷

The boundaries of many contemporary states, especially in the South, are a legacy of colonialism.⁸ They were laid down with little or no regard for the natural boundaries of ecoregions, as is obvious from a comparison of the ecological map given in Fig. 1 with a political map of the world.

Some of Earth's surface is outside of the political control of any state. About 60% of the ocean – the 'high seas' – remains a 'global commons' according to the Law of the Sea Convention. Antarctica remains temporarily free from state sovereignty (although not from territorial claims) due to the provisions of the Antarctic Treaty.⁹ The atmosphere, too, is certainly a global commons.

4. States, 'Nations', and Cultural Boundaries

Although there are about 168 sovereign states, there are far more ethnic groups or 'nations'¹⁰ – probably somewhere around 5,000.¹¹ It is therefore obvious that many ethnic nations do not have sovereignty over any territory, or they may have only limited sovereignty over 'reservations' or 'tribal

homelands'. These indigenous peoples have been called the 'Fourth World' to distinguish them from the three other 'worlds' of sovereign, territory-holding states.¹² They are often the poorest and most politically disenfranchised populations in the world. Indigenous peoples that have been able to maintain their cultures more or less intact until now frequently occupy some of the most remote or harshest land on Earth, land which today often represents the 'last frontier' for developing and developed nations alike.¹³ According to Nietschmann, 'Development by invasion [of the territories of Fourth World nations] is done by all of the most populous states', and 'over one-half of the world's conflicts are being fought over Fourth World geography, not East-West politics or North-South economics'.¹⁴

In striking contrast to the frequent incongruities between the boundaries of states and bioregions is the frequent correspondence between the borders of cultural nations and bioregions. This congruence undoubtedly exists because pre-industrial human cultures were finely adapted to specific biomes.¹⁵ Because the many current state boundaries were created by colonial powers, and not by local inhabitants, it is

not surprising that they often ignore both cultural and ecological boundaries. However, cultural geography is certainly complex, and the patterns of association between cultural and ecogeographical regions are not always clear.¹⁶ As Clay and Holcomb state: 'The association of peoples with specific ecological niches is an enduring feature of regional dynamics that is often overlooked or even misconstrued.'¹⁷

5. *Incongruities Between States and Ecogeographical Regions*

There are two types of incongruities between the boundaries of states and ecoregions: either a single ecoregion can be shared by two or more states, or a single state can encompass more than one ecoregion (see Table I). The latter type of incongruity has been seriously neglected in the recent literature on environmental management and ecological security. It is this type that will be emphasized here.

5.1 *Ecoregions Shared by States*

Two or more states often divide a single ecogeographical region or ecoregion. In these cases, conflict may arise over the apportioning of the natural resources of the region, or over transboundary pollution. International river conflicts fit into this category.¹⁸ Ecogeographical 'regions' or resources that are global commons – the atmosphere, ozone layer, high seas, and Antarctica – present limiting cases of this situation. The need to modify state sovereignty when it is too geographically limited to manage a resource has been widely recognized in the literature.¹⁹

Conflict is also often exacerbated in these cases because of the association between ecoregions and ethnic groups – dividing an ecoregion often puts a single ethnic group under the control of two or more states. The Azeris, found both in the Azerbaijan SSR and in the adjacent region of Iran, provide one example. In the Horn of Africa, an ecoregion characterized by desert and arid grassland wraps around the Ethiopian highlands, extending from eastern Sudan and

Eritrea into Kenya (see Fig. 1). This is an ecosystem best suited to nomadic pastoralism; and the Somali ethnic group, for example, has developed a distinctive 'camel complex' that skillfully exploits this arid region.²⁰ The part of this arid ecoregion inhabited by Somali people is now divided among four states – Ethiopia, Somalia, Djibouti, and Kenya – the result of borders created by European colonial powers and the former Ethiopian Empire. This has created a situation for the Somali that is the subject of a book with the apt title, *Somalia: Nation in Search of a State*.²¹

5.2 *States With More Than One Ecoregion*

Single states often occupy more than one ecogeographical region. While most common in the geographically large superstates (Table I), it is not uncommon even in much smaller states. In contrast to the sharing of an ecoregion by more than one state, this kind of situation has hardly been mentioned in the recent literature.

Conflict can be stimulated in such a situation for two reasons. First, multi-ecogeographical states are frequently multi-ethnic states, and some ethnic groups within a state are often politically weaker than others, often lacking sovereignty over the territories they occupy. Second, even if different ecoregions are ethnically homogeneous, they often support populations of very different densities. In a state where political power is based on proportional representation, such power is often differentially distributed among ecoregions. A more populous region may have the power to control the resources of other regions. These kinds of political imbalance often lead to the exploitation of the resources of one ecogeographical region for the benefit of people who live elsewhere – a kind of intra-state colonialism. In some cases the region can be so overexploited and degraded as to warrant calling it a 'national sacrifice area'.²²

Examples from some of the geographically large states include: the 'national sacrifice area' in the 'Four Corners' area of the

USA;²³ the degradation of the Aral Sea region in the USSR;²⁴ the transmigration of large numbers of people from Java to Irian Jaya, the Indonesian-controlled western half of the island of New Guinea;²⁵ the hydropower schemes on the Ganges and the Narmada Rivers in India;²⁶ and the exploitation of the Amazon region by the state of Brazil.²⁷

Sri Lanka provides one example of this kind of conflict in a small state. It has a 'wet zone', centered in the southwest, and a 'dry zone', located in the east and north. The wet zone is inhabited mainly by Sinhalese, while most of the Tamil ethnic group live in the dry zone. Sinhalese dominate the state government. Government-sponsored water projects in the dry zone benefited mainly the Sinhalese, many of whom resettled in areas occupied mainly by Tamils. This ecogeographical situation is one of the complex roots of the civil war in Sri Lanka.²⁸ Another example is the conflict over the forest resources of Sarawak in Malaysian Borneo.²⁹

The Horn of Africa also provides clear examples of conflict in multi-ecoregional states. Ethiopia, Sudan, and Kenya encompass more than one ecoregion (see Fig. 1), and these ecoregions are inhabited by different ethnic groups. Clay and Holcomb succinctly describe the situation within Ethiopia:

Most general introductions to Ethiopia indicate that its surface consists of three major topographical regions – the lowlands and two types of highland areas. What is normally omitted from such descriptions is that the ecological regions . . . are also largely inhabited by distinct groups of peoples. Semitic highland agriculturalists – the Abyssinians (including Amharas and Tigrayans) – occupy the high, cold regions found mostly in the northern half of the Ethiopian plateau. Mostly Cushites – the largest Cushitic groups are the agricultural and agro-pastoral Oromo and Sidama – inhabit the lower highland areas of the empire which range from temperate to subtropical. Other pastoral Cushitic groups, such as the Somalis in the east, and also Nilotic peoples in the west, inhabit the hot, dry,

lowland areas within Ethiopian boundaries as well.³⁰

When ecological imbalances within ecoregions cause movements of people, conflict can be stimulated. In Somalia, the drilling of wells and an increase in commercial pastoralism for the export market has resulted in human population growth, overgrazing and desertification.³¹ In Ethiopia, forest cover declined from 40% at the turn of the century to only 4% by 1988, and severe soil erosion has reduced agricultural production.³² Large numbers of peasants have left the highlands, often settling in more arid lower regions where they compete for land with the indigenous, ethnically different population, and add further stress to already fragile ecosystems.³³ It is during droughts especially that unsustainable ecological relations in the region manifest themselves in famines and movements of refugees. Since 1970, about 5 million Ethiopians are believed to have been displaced out of a population of about 30 million. By 1980, one-sixth of the population of Somalia were refugees. More than one million refugees from Ethiopia now live in neighboring Sudan, and at least a million in Somalia. Several hundred thousand Sudanese are estimated to have fled to neighboring countries, and millions to have been internally displaced.³⁴ The conflict-stimulating potential of such massive numbers of refugees is obvious.

6. *Ecoregional Self-sufficiency and Ecological Security*

The World Commission on Environment and Development defined 'sustainable development' as economic activity and development that does not overexploit bioregions in such a way that future generations inherit a depleted environment.³⁵ In ecological terms, sustainable development means that we humans must not exceed the carrying capacity of our ecoregions or biosphere.

'Carrying capacity' can be defined as the maximum population that can be indefi-

tely sustained in a given area – that is, without changing the ecosystem in ways that will eventually reduce the sustainable population. This is not a static condition, but one of dynamic stability and balance. Another description of carrying capacity would be a balance between population and resources. Food, water, and energy are probably the three most critical resources in this context. Many ecologists argue that any human-caused ecological degradation in any part of an ecosystem is evidence, at least locally, that carrying capacity has been exceeded.

Ecoregions, because they are quite ecologically homogeneous, are natural units in which to assess carrying capacity by monitoring ecological degradation, and in which to attempt to maintain self-sufficiency in basic ecological resources.

Population-environment imbalance, especially in the poor countries of the South, often creates 'environmental refugees', as people whose governments cannot or will not help them move in search of the resources they need. As such refugees move into other ecoregions, they often interact and compete with people from different ethnic groups. In such cases the cultural differences have a tremendous potential to organize and exacerbate conflict that fundamentally concerns ecological resources.

A number of authors have pointed out the link between ecological security and sustainable development.³⁶ Westing writes: '... once the local peoples and nations recognize the unfailing necessity of dealing with their security problems within the context of their *ecogeographical* region, ... then their highest priority will be to bring regional resource availabilities into balance with regional resource utilization levels.'³⁷ This could be thought of as a general principle of ecological security.

7. Predicting Ecologically Rooted Conflicts

Gebremedhin et al. state that '... a plea must be made for preparing an inventory of potential environmental hot spots and for the structuring of continuing exchanges of

information and perhaps even of joint management'.³⁸ This plea recognizes the fact that once an ecologically rooted conflict begins, it takes on a life of its own, often preventing the cooperation necessary to treat its causes.

The foregoing analysis suggests a way to predict areas of potential environmental conflict. If the analysis has merit, such conflicts should often be found: (1) where ecogeographical and state boundaries do not coincide, and (2) particularly where the carrying capacity of a region has been exceeded (and this especially in poor countries that cannot afford to import basic resources). Many of the hot spots predictable in this way – such as Sri Lanka, the Indus basin, the Middle East, and the Horn of Africa – in fact already have active conflicts.

8. Conclusion

Having presented an argument about some causes of ecologically rooted conflict, let me now suggest relevant policies to resolve such conflicts and enhance ecological security.

First, the predictive hypothesis or model contained in the foregoing analysis could prove useful for identifying areas likely to be hot spots for ecologically rooted conflict, and for taking remedial action before conflict develops. United Nations agencies such as the UN Environment Programme (UNEP), UN Food and Agriculture Organization (FAO), and UN Development Programme (UNDP) could organize a system to monitor environmental degradation and promote corrective action in areas where ecosystems are being damaged – a sort of ecological-security early warning and response system.

On the basis of the foregoing analysis, two kinds of policy recommendations can be made: (1) state sovereignty should be modified, although not abandoned, in order to recognize ecogeographical realities; and (2) basic resource self-sufficiency of bioregions should be encouraged and developed. These two policies are complementary and mutually reinforcing.

The need to modify state sovereignty through international agreements in the cases where ecogeographical regions or resources are shared among states has been widely discussed.³⁹ Nincic has stated that: 'While circumscribing certain attributes of sovereignty, membership in an international organization may – and as a rule does – create conditions for the fuller exercise of other attributes of the self-same sovereignty and thus increases the "effectiveness" of sovereignty as such, even if in a new and different form.'⁴⁰ This is a kind of 'sovereignty bargain' in which some obligations that limit state sovereignty are voluntarily accepted in order to enhance the effectiveness of sovereignty. Most authors agree that this kind of sovereignty bargain will be necessary, to a greater or lesser degree. Piddington, however, argues that to try to resolve international environmental problems 'by creating new mechanisms and imposing restrictions on sovereignty could, on the other hand, lead to an exacerbation of existing problems'.⁴¹ Formal international agreements that involve such international sovereignty bargains are the Antarctic Treaty, the Law of the Sea, and the Montreal Protocol; future agreements to protect the atmosphere and biodiversity will also require such sovereignty bargains.

The UN system has played a central role in encouraging and facilitating the modification of state sovereignty, a subject that must be handled with great sensitivity and diplomacy. It must continue to do so.

The World Charter for Nature of 1982, supported by 112 members of the UN General Assembly, is interesting in this regard. It states that all of Earth's ecosystems, as well as land, marine and atmospheric resources, 'shall be managed to achieve and maintain optimum sustainable productivity'.⁴² The Charter is ambiguous – perhaps deliberately so – about the exact locus of sovereignty. Although it acknowledges state sovereignty over natural resources, it then suggests that states do not have the right to exploit them in an unsustainable way, and that they must follow the

other provisions of the Charter, cooperating with other states in order to do so. If upheld, the provisions of the World Charter for Nature would preclude 'national sacrifice areas', transboundary pollution, unsustainable development, and most other sources of ecological insecurity.

UNEP has pioneered the path toward some formal agreements for regional environmental cooperation through its Regional Seas Program. Sustainable development of common resources has increasingly been a part of action plans for regional seas; 'in several regions the program has managed to bring antagonistic nations to the bargaining table and to achieve agreement among them on regional environmental issues in spite of their otherwise hostile relations'.⁴³ Some international river agreements provide hopeful models of cooperation also.⁴⁴

Gebremedhin has pointed out that 'the transboundary nature of the [regional] sea itself seems to be conducive to cooperation'. The regional seas model needs to be adapted for terrestrial ecogeographical regions, where traditional attitudes about state sovereignty over territory seem to make cooperation more difficult.

In the Horn of Africa, the Intergovernmental Authority on Drought and Development (IGADD) is a fledgling institution with great potential for building regional environmental cooperation. Djibouti, Ethiopia, Kenya, Somalia, Sudan, and Uganda are the members of IGADD, which met for the first time in February 1985. With encouragement from UNEP and other organizations, IGADD could grow into the kind of organization necessary to resolve the ecologically rooted conflicts of the region and stimulate cooperation toward ecologically sustainable development. This is a very hopeful model for many other regions also, and it should be strongly supported.⁴⁵

Not enough attention has been given to the cases where one state encompasses more than one ecoregion, nor to the association between ecoregions and ethnic groups. Discussing problems of sovereignty and multi-ethnic states, Boulding writes:⁴⁶

Since ethnic groups are solving social and economic problems that central governments have been unable to deal with, the next developmental stage would appear to be a devolution of governmental power, passing it on to groups that are competent at the local level, with an accompanying willingness on the part of local groups to cooperate within an administrative system that gives them more recognition. The process has already begun, assisted by INGOs that are focused on grassroots development.

Indigenous cultural groups, prior to their disruption by colonialism at least, often lived in population-resource balance with their environments, and maintained a vast reservoir of traditional ecological wisdom about living sustainably within their ecoregions.⁴⁷ This indigenous, traditional knowledge, if it has not been lost, can be used to solve the 'social and economic problems' of how to live sustainably within ecoregions – problems that central governments of modern states have generally been unable to solve. Eventually the community of states may come to regard the diversity of human culture, and their traditional ecological knowledge, as a 'global common resource', worth protecting by international agreement.

Alliances between indigenous peoples and environmental international non-governmental organizations (INGOs) that attempt to preserve both the cultures and the ecosystems they occupy are occurring, as Boulding says; and such alliances foster the process of decentralization of sovereignty. For example, the indigenous people of Sarawak have allied with Sahabat Alam Malaysia, an affiliate of the INGO Friends of the Earth, in an attempt to halt logging in their territory.⁴⁸ At a recent meeting in Iquitos, in the Peruvian Amazon, many environmental INGOs met with a coalition of Amazonian tribes. The 'Iquitos Declaration', issued at the meeting, recognizes the claims of indigenous peoples to own and to manage their own territories.⁴⁹

Once again, the UN system could take a leading role in tactfully encouraging and

skillfully facilitating a decentralization of state sovereignty along ecoregional lines. Some of this may be set in motion by the UN Working Group on Indigenous Populations.⁵⁰ Perhaps what is ultimately required is a 'reconstituting' or 'refederalizing' of multi-ecogeographical states to allow limited sovereignty or autonomy for ecoregions and the ethnic groups that inhabit them.⁵¹

Sovereignty bargains, in which a state gives up some measure of control over its constituent bioregions and 'nations', might actually increase the overall effectiveness of state sovereignty, just as in those cases that involve relinquishing some aspects of sovereignty in international agreements. The effectiveness of the government of Ethiopia, for example, is currently rather questionable, as significant parts of Ethiopia are in the control of various rebel fronts. Its effective sovereignty would probably increase if it struck a sovereignty bargain and agreed to relinquish some measure of control of certain portions of its territory. The same might be true in Brazil, where the Iquitos Declaration seems to make exactly this demand of the state government.

In each case, sovereignty should be modified according to the principle of 'subsidiarity': 'Simply stated: whatever can be managed at the local level should be. Only when a problem exceeds the competence of a particular locality should it be taken up by a larger social structure.'⁵² This same principle is reflected in Gebremedhin et al.: 'environmental problems must be responded to at the spatial level at which they occur.'⁵³ Sovereignty bargains will have to be made at *all* levels of the 'ecopolitical hierarchy' – local, subnational, national, multilateral, and global⁵⁴ – in order to build institutions that can resolve ecologically rooted conflicts and create ecologically sustainable development.

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