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I C E L

INTERNATIONAL AND COMPARATIVE ENVIRONMENTAL LAW

VOLUME 1 ISSUE 1

FALL/WINTER 2000

FEATURE ARTICLE

Hybrid Liability Under Kyoto Protocol¹

by Glenn Wiser and Donald Goldberg

The Center for International Environmental Law, UNFCCC and the Kyoto Protocol

As the Earth continues to experience record-breaking temperatures, scientists increasingly point to human activities—especially the burning of fossil fuels—as the culprit. Rising concentrations of heat-retaining gases are disrupting the delicate balance between our Earth and its atmosphere. The resulting impacts include biodiversity loss, melting polar ice caps, and an alarming increase in severe weather events. As the Earth continues to experience record-breaking temperatures, concern is growing over carbon dioxide (CO₂) and other greenhouse gas emissions stemming from human activities, specifically the burning of fossil fuels. As concentrations of heat-retaining gases continue to grow over time, they increasingly disrupt the delicate balance between the Earth and its atmosphere. The resulting detrimental impacts include ozone depletion, biodiversity loss and disruption of the climate system.

In 1992, the United Nations Framework Convention on Climate Change (UNFCCC) emerged from the Earth Summit in Rio to address this pressing global problem. Almost

immediately, the limitations of the non-binding targets sent in the UNFCCC became apparent and in 1997 the Conference of the Parties (COP) met and agreed upon the Kyoto Protocol. The developed countries, listed in Annex B to the Protocol, commit themselves to reducing their collective emissions of six key greenhouse gases by at least 5%, as measured against a base year of 1990, by the end of the period from 2008-2012 ("commitment period"). Certain exceptions were made for the economics in transition of the former Soviet Block. The Climate Change Program at the Center for International Environmental Law (CIEL) strives to protect the Earth's climate system while simultaneously promoting other environmental and social concerns, such as forest conservation, biodiversity protection, and human rights. CIEL has played an integral role advising major players in the international policy arena how to work towards a sustainable, enforceable emissions reduction framework. We have attended every session of the Conference of the Parties since the United Nations Framework Convention for Climate Change (UNFCCC)² entered into force. CIEL has been intimately involved in the negotiations surrounding the Kyoto Protocol,³ which for the first time establishes binding, numerical emissions reduction targets for industrialized countries.

The goal of the Climate Change Program at the Center for International Environmental Law (CIEL) is to protect the earth's climate system against pollution and the potential threat of global warming. Under the United Nations Framework Convention for Climate Change (UNFCCC)⁴, CIEL has played an integral role in advising major players in the international policy arena in

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The Center for International Environmental Law (CIEL) is a public interest, not-for-profit environmental law firm founded in 1989 to strengthen international and comparative environmental law and policy around the world. CIEL provides a full range of environmental legal services in both international and comparative national law, including policy research and publication, advice and advocacy, education and training, and institution building. For more information about CIEL visit www.ciel.org.

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American University's Washington College of Law has been a leader in the emerging fields of international and comparative environmental law since 1990, when WCL and the Center for International Environmental Law (CIEL) established the Joint Research Program for International and Comparative Environmental Law. The program provides a interdisciplinary setting for training future leaders in environmental law. The curriculum consists of over twelve courses including International Environmental Law, Comparative Environmental Law, Trade and the Environment, Human Rights and the Environment and Comparative Environmental Impact Assessment. The program also organizes workshops, symposia and supports research by students and leading legal scholars. The result is a cooperative effort that provides students with a dynamic learning environment; scholars with a stimulating atmosphere for conducting practical research and young lawyers with exciting opportunities for beginning their environmental law careers. Indeed, many students have gone on to form their own environmental law organizations around the world.

With this tradition in mind, we are pleased to introduce the inaugural issue of *International & Comparative Environmental Law* (ICEL). It is the product of a diverse group of J.D. and LL.M. students working under the guidance of CIEL. The goal of this newsletter is to provide timely information and analysis on issues relating to international and comparative environmental law and policy. ICEL's format of short articles and features is intended for practitioners, as well as policymakers, law professors and students who require timely and concise analysis. We appreciate your subscription and welcome your feedback.

Thomas C. Higdon
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working towards a sustainable, enforceable emissions reduction framework. CIEL has been intimately involved in the negotiations surrounding the Kyoto Protocol³, and has attended Conference of the Parties meetings since their induction to help achieve the adoption of the proposed framework.

Introduction to Kyoto

One of the Kyoto Protocol's most significant features is the incorporation of market-based mechanisms for "cooperative implementation" (CI) designed to allow Annex I countries to achieve their required emission reductions at the least possible cost.

No international environmental agreement to date has relied on flexible market mechanisms to

the extent called for in the Protocol. The Protocol contains four CI mechanisms: joint fulfillment (JF, Article 4), joint implementation (JI, Article 6), the Clean Development Mechanism (CDM, Article 12), and international emissions trading (IET, Article 17). The common feature of these mechanisms is that they allow for the transfer of greenhouse gas (GHG) emissions units between Parties to the Protocol. None of the CI mechanisms are fully defined in the Protocol, and they all require significant additional clarification by the Parties. Nevertheless, it is apparent that how these mechanisms are elaborated is certain to influence both the implementation of, and compliance with, the obligations of the Protocol.

Elaboration of the mechanisms will require analysis of a number of complex issues, many of which have no precedent in international environmental law. The secretariat of the Framework Convention on Climate Change (FCCC) does not include Article 4 as a CI mechanism, but does include "activities implemented jointly," which are not discussed in this paper. Annex I countries refer to developed countries and those with economies in transition as listed in Annex I to the FCCC. These countries have accepted quantified emission reduction or limitation commitments under the Kyoto Protocol. The term "implementation" refers to obligations during the commitment period, and "compliance" refers to obligations at the end of the commitment period.

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ALASKA: The Conflicted State of ANWR

by Derek Howard^{1a}

"We need to open up the ANWR to oil exploration" - Sen. Frank Murkowski²

"ANWR will be one of my first priorities." - President-elect George Bush³

Alaska's Conflict

No state in the U.S. is more clouded in mystique than Alaska. Its legend has been shaped through the literature of Jack London, the field notes of John Muir, and the oral history of adventurers and prospectors that have ventured across the vast and remote region. Alaska conjures images of nature at its wildest. William Bronson once described Alaska as the "last grand adventure, the ultimate saga in conquest of North America." Today, however, the adventure is over, and the conquest is complete; but a saga continues. Since the Klondike gold rush that began in 1897, Alaska has been tamed by modern social and political institutions and a thriving economy which is inextricably connected to its legendary natural resources. Alaska is also a state mired in bitter conflict, as industry and environmentalists have clashed over its resources. For industry, the stakes include revenue, jobs, and the domestic need for resources, such as timber, minerals, oil, and food supply. For environmentalists, the stakes include some of the most dynamic yet fragile ecosystems in the world. The ensuing environmental conflicts have polarized Alaskan society and spawned legal questions on federalism, resource management, and international law. Alaska is at a critical juncture where the direction of its environmental policy is at issue. This is by through the intensifying debate on whether to allow the exploration and development of oil in the Arctic National Wildlife Refuge (ANWR), the resolution of which will have profound implications for the arctic environment and U.S. agreements under international law.

The Natural Landscape

At one-fifth the size of the continental U.S., Alaska extends over 586,412 miles (approx. 365,000,000 acres) and is the most geographically dynamic region in the nation, if not the world.⁴ Its various habitat zones, ranging from the rainforests of the southeast to the wet and dry tundra of the arctic, support a rich biodiversity, including functioning populations of species that are now extinct from the continental U.S. Alaska is also an important repository of threatened species.⁴ The abundant wildlife of Alaska's interior includes healthy populations of moose, caribou, and predatory mammals such as wolf, black bear, brown (or

grizzly) bear, and polar bear. Alaska's biodiversity extends beyond its land boundaries to its marine ecosystem, which is the most productive in the U.S. and one of the most productive in the world.⁵ Its nutrient-rich waters support approximately 450 species of fish, crustaceans and mollusks; 50 species of seabirds; and 25 species of marine mammals.⁶ The coast of Alaska serves as an important site for the annual migration routes of many of these species.

For the scientific community, Alaska's diverse biological stocks and geography advance exceptional opportunities to collect valuable field data and to conduct rare observations of ongoing natural processes. It is still possible, for instance, to study recent deglaciation (a process that molded much of the eastern and central U.S.); species microevolution after deglaciation, glacial refugia, nunataks, and ungulate migrations, as well as population dynamics and trophic relations of viable populations of wolves and bears.⁷ The indigenous communities of Alaska, which include Northwest Coast Indians, Inupiaqs, Yupiks, Aleuts, and Athabascans, also offer opportunities to study some of the few remaining subsistence cultures in the world.⁸

The Social, Economic, and Political Landscape

In contrast to the lower states, nature remains the dominant theme of Alaskan life. With spirited independence and unflappable determination, Alaska's growing population of roughly 621,400⁹ brave what many would regard as inhospitable, if not uninhabitable, conditions. No matter how modern, Alaskan communities are vulnerable to the natural elements, including wildlife that roams into city limits without the buffer zones of suburbs to redirect their curiosity. The population's close relationship with nature is often characterized by conflict. Alaska is still an environment where humans are prey, disappear in the backcountry, die from hypothermia, are swallowed by avalanches, and fall to their peril on mountains and glaciers. In short, nature in Alaska has retained its power to humble individuals—to remind them that despite human evolution and progress, nature can rise up at any moment, strike, and put them in their place.

If Alaska involves the classic struggle of man verses nature, then the state is well positioned to exert its own control over the natural environment through the industries of oil and gas, fishing¹⁰, timber, mining, and agriculture. Oil and gas is the state's largest industry and has driven the economy since oil was first discovered in 1968 underneath the Prudhoe Bay in the Arctic Ocean. State oil taxes account for roughly 80 percent of Alaska's \$2.3 billion general fund budget.¹¹ In

part because of sizeable revenues from oil exploration and development, there are no state taxes on income, sales, or inheritance. The Permanent Fund further ensures oil exploration and development directly benefits each state resident. Approved by constitutional amendment in 1976 in part "to provide a means of conserving a portion of the state's revenue from mineral resources to benefit all generations of Alaskans,"¹² the fund's principal is derived primarily from dedicated oil reserves. Since 1976, the Fund has grown to more than \$28.1 billion (as of June 30, 2000). In fiscal year 2000, The Permanent Fund will pay a record dividend of \$1,963.86 to an estimated 585,800 residents, marking the eighth consecutive annual dividend increase.¹³ These benefits realized at the individual level help secure oil and other industries public loyalty in their campaigns for expanded development of the state's natural resources. Industry in Alaska, particularly oil and gas, wields enormous bipartisan power over the state legislative and executive branches.¹⁴

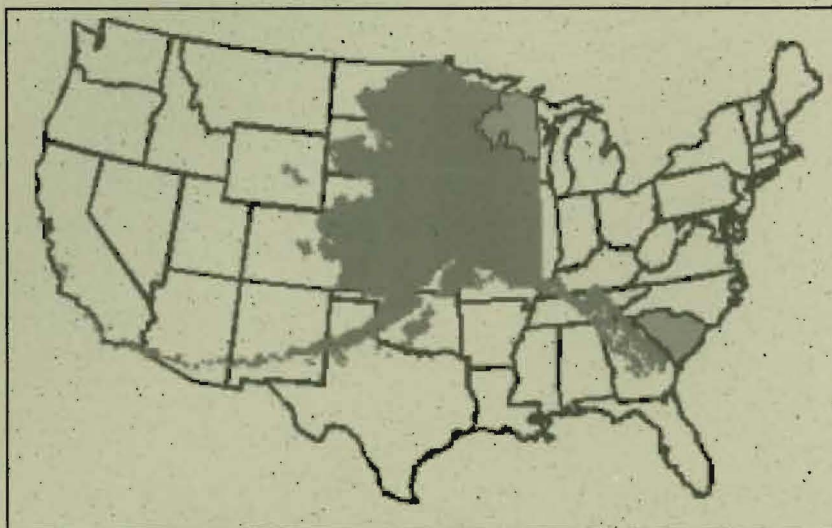
Although Alaskan society and economy is premised on a frontier philosophy and a conquest-of-wilderness mentality, the state is witnessing an emerging environmental ethic.¹⁵ This ethic stems from the concern that Alaskan industries are postured to over-exploit the state's ecosystems and risk their collapse and, in turn, the collapse of the resource-dependent economy. This concern is evidenced by the proliferation of an unprecedented number of environmental organizations throughout Alaska with state-specific agendas.¹⁶ Conservation of Alaska's environment is guided by three rationales. First, because the state economy is resource-dependent, its limits cannot exceed those of the ecosystems upon which it depends. If industries such as fishing and timber are to endure, the state must follow a policy of sustainable development. Second, an economic development policy focusing on resource exploitation is at odds with the state's second largest industry of tourism that attracts 1.1 million tourists (nearly double the resident population) to the state each year.¹⁷ Finally, the preservation of Alaska's ecosystems is not a state-specific concern. There are also important national and international considerations, premised in part on the transboundary migrations of species such as whales, caribou, polar bears, and birds. In pursuing an agenda of conservation, groups are finding that the industry stranglehold on the political process is strengthening. Conservation groups have thus sought recourse through state and federal courts as well.¹⁸

Discourse between industries and conservationists in Alaska is frustrated by incomplete environmental information.¹⁹ The opposing sides must compromise and reach consensus to advance a policy of sustainable development, yet these efforts are nearly

impossible under the status quo because each side risks giving away critical points. Further scientific inquiry is necessary, for example, to identify ecological systems at risk from development and direct development away from sensitive areas or species. If sensitive areas cannot be avoided, information can lead to the development of new methods that minimize or counteract environmental impacts.²⁰ Without critical environmental information, state and national policymakers risk making uninformed decisions that can result in unknown environmental impacts that could have been avoided. Moreover, "without information, the only viable political alternatives are at the extremes, with 'winner take all' confrontations over issues."²¹ These confrontations dominate Alaska's political and social landscape and prevent a sound development policy.

The Arctic National Wildlife Refuge (ANWR)

The uncertain direction of state and national policy on Alaska's environment is evidenced through the intensifying dispute over the Arctic National Wildlife Refuge (ANWR). The issue of whether to allow oil exploration and development in ANWR is gaining national attention and was highlighted in the 2000 presidential campaign as one that distinguished the two major candidates' positions on environmental policy, with candidate Gov. George W. Bush favoring oil exploration and candidate V.P. Al Gore opposing it.²² Three bills have also been introduced in the 106th Congress that may determine the fate of ANWR. Sen. Frank H. Murkowski (R-Alaska), Chairman of the Senate Energy and Natural Resources Committee, introduced the "National Security Energy Act of 2000" that establishes a competitive oil and gas leasing program with limited federal oversight.²³ Rep. Bruce Vento (D-Minn.) and Sen. William Roth (R-Del.) have introduced legislation that designates the disputed area as wilderness, thereby offering permanent protection.²⁴ Environmentalists remain strongly opposed to oil



*Arctic National Wildlife Refuge 19.8 million acres
South Carolina 19.9 million acres*

development in ANWR. A recent statewide public opinion poll indicates Alaskans are divided on the issue, with 45% supporting protection of ANWR from drilling, and 49% opposing protection measures.²⁵ In short, the issue is ripe for resolution, the outcome of which will have profound implications for the environment.

Located in the northeastern part of the state, the refuge was established in 1960 and is managed by the U.S. Fish and Wildlife Service (USFWS) of the U.S. Department of the Interior.²⁶ Today, ANWR includes nearly 20 million acres, with eight million acres designated as wilderness (the largest designation in the National Wildlife Refuge System).²⁷ The vast and remote region of ANWR is one of the most complete, pristine, and undisturbed ecosystems in the world.²⁸ Despite fragile growing conditions, it contains hundreds of species of mosses, wildflowers, grasses, shrubs and other plants.²⁹ ANWR also supports the greatest wildlife diversity of any protected area in the circumpolar North.³⁰ Nearly 180 species of birds,³¹ 45 species of mammals,³² and 36 species of fish³³ inhabit the region. It is also home to local Inupiat Eskimo and Gwich'in Indian communities.

The area of ANWR under dispute is the 1.5 million acres tract of land known as the "1002 Area." This area was not designated wilderness by the Alaska National Interest Lands Conservation Act (ANILCA) of 1980 that doubled the size of ANWR, but as a special study area.³⁴ Congress stated in Section 1003 that the "production of oil and gas from the Arctic National Wildlife Refuge is prohibited and no leasing or other development leading to production of oil and gas from the [Refuge] shall be undertaken until authorized by an act of Congress." Section 1002 of ANILCA outlined the information required before Congress could either grant wilderness designation, or approve oil exploration and development. This information included a final report of USFWS biological baseline studies published in 1986 and a Legislative Environmental Impact Statement (LEIS) submitted to Congress in 1987 that described the potential impacts of development and included the Secretary of Interior's final report and conclusion. The LEIS was based in part on information gathered from the USFWS baseline studies, as well as seismic studies conducted by a private exploration firm and funded by a group of oil companies.³⁵ Although the factual conclusions of the baseline studies and the LEIS supported protection of the 1002 Area, the Secretary recommended full leasing of the Arctic Refuge Coastal Plain.³⁶ Congress, however, passed on resolving the issue of ANWR, first in 1989 when pro-development legislation near passage was sidelined by the Exxon Valdez oil spill, and again in 1991 when it struck a pro-development provision from the National Energy Policy Act.³⁷ In 1995, Congress passed budget legislation that included a provision allowing development, but President Clinton vetoed the bill. The Clinton Administration remains opposed to oil development in ANWR.³⁸

ANWR Drilling Rationales and Response

Supporters of oil exploration and development in the 1002 Area argue: (1) the captured oil will decrease reliance on imported oil to meet domestic energy needs and provide for national energy security;³⁹ (2) development will extend the life of the Trans-Alaska Pipeline System (TAPS) and ensure a strong and long-term Alaskan economy;⁴⁰ and (3) advances in exploration and drilling technologies will minimize industry's "footprints" on the ecosystem.

1. *The National Energy Security Rationale in Light of USGS Estimates*

Supporters of oil exploration and development generally cite 16 billion barrels of oil (BBO) as the estimated amount of oil present in ANWR.⁴¹ This figure is misleading based on analysis of the most recent U.S. Geological Survey (USGS) report on the 1002 area. There is far less producible oil in ANWR than supporters indicate. In 1998, the USGS reported its assessments of petroleum resources in the 1002 area based on three categories: (1) in-place resources; (2) technically recoverable resources; and (3) economically recoverable resources. First, in-place resources are "the amount of petroleum contained in accumulations of at least 50 million barrels of oil (MMBO) without regard to recoverability."⁴² The USGS estimates that the 1002 area contains between 11.6 and 31.5 BBO as in-place reserves.⁴³ Second, technically recoverable resources are "the volume of petroleum representing that proportion of assessed in-place resources that may be recoverable using current recovery technology without regard to cost."⁴⁴ Technically recoverable resources are estimated to be between 4.3 and 11.8 BBO.⁴⁵ Finally, economically recoverable resources are "that part of the technically recoverable resource for which the costs of discovery, development, and production, including the return to capital, can be recovered at a given well-head price."⁴⁶ The USGS estimates that, "assuming a price of \$24 per barrel, there is a 95% chance of finding 1.9 BBO of economically recoverable oil in the Arctic Refuges 1002 Area; a 5% chance of finding 9.4 BBO; and a 50% chance of finding 5.3 BBO" (present oil prices range between \$25 to \$35 per barrel).⁴⁷

The 16 BBO figure cited by supporters of oil development represents oil that exists in theory, but oil that is presently impossible to extract. The USGS estimates of economically recoverable resources, in contrast, have application in the real world. Accordingly, because the U.S. uses 7 BBO of oil per year (19 MMBO a day), only a 50% chance exists of finding a 9-month supply of oil in the 1002 Area (at \$24 per barrel).⁴⁸ The cited 16 BBO estimate is not within the realm of possibility for either economically or technically recoverable resources. Thus, USGS estimates of recoverable resources in the 1002 Area do not support the claim that their development will significantly impact domestic oil production or petroleum imports, especially since aggregate domestic oil production is predominately comprised of contributions from a multitude of small- and medium-sized oil fields.⁴⁹

The national energy security rationale in support of oil development in ANWR is inconsistent with the present practice of exporting crude from Alaska's North Slope (ANS crude) to foreign markets. In 1973, Congress enacted export restrictions on ANS crude as a significant condition in legislation that authorized the constructions of TAPS. These restrictions continued, and were tightened, throughout the 70s and 80s.⁵⁰ The export ban reflected Congress's unwillingness to open the arctic area to oil production, in light of environmental risks and consequences, only to have the oil exported as a commodity by major oil companies.⁵¹ ANS crude, then, was viewed not as a commodity for profit, but as a resource vital to national energy security. However, this view shifted in 1995 when Congress lifted the ban on ANS crude under pressure from oil companies and the state of Alaska.⁵² Sen. Murkowski, a major force behind the lifting of the ban, stated the ban "prevented Alaska from exporting one of its most important resource commodities."⁵³ At present, 26,000 to 135,000 barrels of ANS crude are exported to Asia every day.⁵⁴ To secure political support for oil development in ANWR, its supporters are again emphasizing the value of ANS crude as a resource, creating the impression that captured oil will remain in the U.S. If ANS crude is to be regarded as a resource critical to national energy security, then a corresponding policy shift that would restore the ban on ANS crude exports is appropriate. A ban on ANS crude exports could mitigate the need for oil development in ANWR.

2. *The Impact of ANWR on TAPS*

Given the ways in which Alaskans benefit economically from oil development in the state, it is not surprising that many condition their financial security on TAPS. Completed in 1977, the pipeline is the only means of moving oil from the Prudhoe Bay production sites to the distribution site of Valdez. In the absence of additional drilling sites, there is concern that the pipeline will run dry or too low for its maintenance to be cost effective. If the pipeline were to close, it would halt any remaining production in the North Slope and foreclose the possibility of future exploration and development. USGS estimates of producible oil in ANWR, however, do not suggest the 1002 Area will impact the life of TAPS. Furthermore, although varied, projections of producible oil in the existing North Slope oil fields indicate that TAPS will continue to move oil well beyond its initial life expectancy.⁵⁵ Sen. Murkowski notes the fields "will continue to produce oil well into the next decade."⁵⁶ One report concludes that "oil companies are expecting the pipeline to be operating until at least 2040 without oil from the Refuge—exceeding the original design-life of TAPS by almost three decades."⁵⁷

3. *Industry 'Footprints,' or Stomps?*

Although oil development in ANWR will provide only marginal benefits in the short-term, it will result in immediate environmental impacts, the effects of which can

only be measured in geologic time. First, although advances in exploration and drilling technology have decreased the oil industry's "footprints" on the land,⁵⁸ the metaphor is misleading. The footprints may be smaller, but their aggregate sum is getting larger.⁵⁹ If the *Alaska continued*

1002 Area is opened for drilling, their sum would be enormous. While the producible petroleum at Prudhoe Bay is contained in large and relatively contiguous pools, the most recent USGS survey of the 1002 Area suggests the potential oil reserves are distributed among many smaller pools.⁶⁰ This wider distribution of oil reserves would likely result in a greater impact on a larger environment.⁶¹ The large number of scattered and remote production sites would require an intricate infrastructure of roads, pipelines, power plants, processing facilities, loading docks, dormitories, airstrips, gravel pits, utility lines and landfills.⁶² Moreover, the 1002 Area is located more than 30 miles from the end of the nearest pipeline and more than 50 miles from the nearest gravel road and oil support facilities.⁶³

Although the 1002 Area accounts for only 10% of ANWR's total acreage, it claims most of the Refuge's coastal plain and arctic foothills ecological zones and is critically important to the ecological integrity of the entire Refuge.⁶⁴ USFWS concludes the effects of oil exploration and development in the Refuge would extend far beyond industry "footprints," and would result in many cumulative impacts. These impacts include: (1) the blocking, deflection and disturbance of wildlife, resulting in decreased populations in the area; (2) loss of subsistence hunting opportunities for natives such as Gwich'in Indians; (3) potentially fatal interactions between humans and polar bears and brown bears; (4) increased predation by arctic fox, gulls and ravens on nesting birds due to introduction of garbage as a consistent food source; (5) increased freezing depths of rivers and lakes as a result of water extraction (for ice road and pad construction and for oil well re-injection), killing overwintering fish and aquatic invertebrates; (6) alteration of natural drainage patterns, causing fisheries impacts and changes in vegetation; (7) deposition of alkaline dust on tundra along roads, impacting vegetation over a much larger area than the actual width of the road; (8) contributions to pollutant haze and acid rain from nitrogen oxides, methane and particulate matter emissions; and (9) contamination of soil and water from fuel and oil spills.⁶⁵ USFWS further concludes that oil exploration and development will diminish ANWR's scientific value as a benchmark for understanding important ecological and evolutionary processes.⁶⁶

International Implications of Drilling in ANWR

Since ANWR straddles the U.S.-Canada border and serves as critical habitat for species that migrate across many national boundaries, the proposed development in the 1002 Area has several international implications. The U.S. is party to multiple agreements with several nations that protect specific species of wildlife and their habitat, including species found

in ANWR. These agreements include treaties to protect the Porcupine Caribou Herd (PCH), polar bears, and birds. Furthermore, since evidence suggests oil exploration and development may adversely impact these populations, as well as the environment in general, the U.S. may have a duty under international environmental law to perform a comprehensive environmental impact assessment (EIA).

1. The U.S.-Canada Agreement on the Conservation of the Porcupine Caribou Herd.

In 1997, the U.S. entered into a treaty with Canada to conserve the PCH and their habitat.⁶⁷ PCH habitat includes the arctic coastal tundra of ANWR where female caribou calve in late spring, upon the Herd's migration from their wintering grounds south of the Brooks Range in the U.S. and Canada.⁶⁸ The 1002 Area is vital to PCH reproduction since it contains a food source that is higher in nutrition, more digestible, and more available than in surrounding areas, and allows female caribou to build up their fat reserves and milk—essential to the birth of healthy calves.⁶⁹ The coastal plain calving area is also relatively free of predators.⁷⁰ Female caribou with newborn calves are highly sensitive and will seek refuge from human disturbances as far as 1.5 miles away.⁷¹ Oil development may therefore displace the PCH from their preferred calving grounds, without suitable habitat alternatives. The overall effects of oil development on PCH may include: (1) reduction in the amount and quality of preferred forage available during and after calving; (2) restricted access to important coastal insect-relief habitats; (3) exposure of the herd to higher predation; and (4) alteration of an ancient migratory pattern, the effects of which cannot be predicted.⁷² These effects on PCH would in turn negate an additional objective of the treaty which is to ensure customary and traditional uses of the Herd by rural Alaskans and Canadians, including the Gwich'in Indians who live in the Refuge and oppose oil development.⁷³ Congress may therefore violate both the terms and spirit of the agreement on the conservation of the Porcupine Caribou Herd if it authorizes oil development and exploration in the Refuge.

2. The Multilateral Agreement on the Conservation of Polar Bears

The U.S. also recognized the international importance of protecting polar bears and their ecosystems when it entered into the multilateral Agreement on the Conservation of Polar Bears with Canada, Denmark, Norway, and the U.S.S.R. in 1976.⁷⁴ The agreement states that each party "shall take appropriate action to protect the ecosystems of which polar bears are a part, with special attention to habitat components such as denning and feeding sites and migration routes."⁷⁵ It also contains provisions to conduct scientific research and to enact and enforce legislation to protect polar bear habitat.⁷⁶ Allowing oil development in the 1002 Area would threaten a habitat component emphasized in the treaty as one deserving special attention, since the arctic coastal plain provides the most important land denning

habitat for the Beaufort Sea polar bear population. Studies of radio-collared polar bears of the Beaufort Sea population between 1981 and 2000 showed that "53 dens were located on the mainland coast of Alaska and Canada. Of these 53 dens, 22 (42%) were within the Arctic Refuge's 1002 Area."⁷⁷ Oil development would create several risks for the protected species. First, because polar bears are highly sensitive to human activities while denning, disruptive drilling may prematurely displace females with newborn cubs from their winter dens and expose the cubs to harsh winter conditions for which they are not yet prepared, resulting in increased cub mortality.⁷⁸ Second, the introduction of contaminants into the ecosystem through spills and discharges may further increase mortality rates since they may accumulate in the Beaufort Sea polar bear population due to the simplicity of area's food web.⁷⁹ Finally, oil industrial complexes may create opportunistic feeding sites resulting in fatal human-bear conflicts and long term adaptive changes.⁸⁰ Under the terms of the treaty, these risks weigh in favor of protecting the Beaufort Sea polar bear habitat in ANWR. If Congress nonetheless permits development of this habitat area, it could be violative of the treaty.

3. International agreements on the protection of migratory birds.

The U.S. also entered into treaties with Japan (1974)⁸¹ and the U.S.S.R. (1978)⁸² to protect migratory birds and their habitat, many of which are found annually in ANWR. Of the 189 species protected by the U.S.-Japan treaty, fifty-five species are known to visit the arctic coastal plain. Of these fifty-five species, thirty-one are classified as "frequent" or "common migrants" to the coastal plain, including the snow goose.⁸³ 135 species of birds are known to rely on ANWR for habitat, including the 1002 Area.⁸⁴ Therefore, 40% of these birds are protected by the agreement.⁸⁵ Of the species protected by the U.S.-U.S.S.R. treaty, eighty-eight rely on ANWR for habitat, with thirty-three migrating, breeding, or feeding in the area on a frequent basis, including the snow goose.⁸⁶ USFWS reports "oil development in the Arctic Refuge would result in habitat loss, disturbance, and displacement or abandonment of important nesting, feeding, molting and staging areas" for bird populations, particularly the snow goose.⁸⁷ Oil development in ANWR thus implicates U.S. obligations under both treaties.

4. Duty to Assess Environmental Impacts

The location of ANWR along the U.S.-Canada border and the implication of four international treaties creates a transboundary context for the issue of development in the area. The U.S. may therefore be obligated under international law to abide by the principle of duty to assess environmental impacts. The duty to conduct an Environmental Impact Assessment (EIA) for activities conducted in a transboundary context "is probably now a requirement of customary law, as it has been recognized in numerous treaties and an increasing number of States are

assessing transboundary impacts as part of their EIA regime."⁸⁸ The general purpose of an EIA is to fully identify and consider the environmental impacts of an activity before it is undertaken, and to provide relevant actors the opportunity to understand the potential impacts and express their views. The duty to perform an EIA is reflected, for example, in Principle 4 of UNEP's Principles on Shared Natural Resources (1978) and Article 14 of the Biodiversity Convention.⁸⁹ Even if the proposed activity within the jurisdiction of a State does not risk a transboundary impact, Principle 17 of the Rio Declaration suggests an EIA may still be necessary if the activity has the potential to significantly impact the local or regional environment.⁹⁰

The U.S. did not meet its duty under international law to conduct an EIA through the LEIS submitted to Congress in 1987. USFWS now regards the LEIS as insufficient since it "adapted a highly compartmentalized assessment, and considered impacts to species in isolation rather than as interconnected components of a complex ecosystem."⁹¹ The LEIS also concluded that the major impacts it predicted were acceptable risks in reliance on mitigative measures, but some of its conclusions are "speculative and unproven."⁹² Since the 1987 LEIS, environmental impacts have been observed in connection with the North Slope oil fields, yet with respect to the 1002 Area, "baseline studies are notoriously lacking, a study of cumulative impacts does not exist, and no comprehensive [Environmental Impact Statement] has ever been undertaken."⁹³ USFWS recognizes the requirement of "a more scientifically sound evaluation [that considers] the interrelationship of the species and the surrounding environment of the coastal plain."⁹⁴ If Congress authorizes oil development in the absence of an EIA, the U.S. would be negligible under international law, particularly in light of evidence that development may adversely impact PCH, polar bears, and migratory birds, as well as the arctic environment in general.

Conclusion

Alaska may no longer be the last frontier its legend purports, but it does remain this nation's last opportunity to oversee the early stages of a state's development and preserve its ecosystems.⁹⁵ If the state pursues a course of sustainable development to preserve its natural resources for present and future generations, it must strike a balance between industry and the environment. The influence of the oil industry on the state legislative and executive branches, however, may preclude the ability of these branches to strike the required balance. The impartiality of the state's courts could therefore be instrumental in monitoring environmental disputes. Moreover, if the federal government is to protect the resources this nation regards as its national treasures, but that lie within Alaska's borders, it must retain the jurisdiction it presently exercises. In light of the state's environmental conflict and a political process tilted in favor of the oil

interest, it would be imprudent for Congress to pass legislation such as Sen. Murkowski's National Security Energy Act of 2000 that transfers land management authority to the state.

In confronting the question of the Arctic National Wildlife Refuge, Congress has the unique opportunity to preserve one of the last remaining pristine and intact ecosystems in the world. The ecosystem has been preserved to date under the provision of ANILCA that designated the 1002 Area as a special study area. The increasingly vocal and active sides of the dispute, however, will likely compel Congress to resolve the issue. If a resolution is derived from U.S. national law, Congress has two options: it can either authorize oil exploration and development, or grant wilderness designation. The marginal benefits of oil development are outweighed by its potential to adversely impact an important ecosystem that supports the native Gwich'in Indians and protected species such as the Porcupine Caribou Herd, Polar Bears, and migratory birds.

The international environmental law principle of common concern of humankind (CCH) also provides guidance on an appropriate regulatory scheme for ANWR. In contrast to the principle of common heritage of humankind that applies to resources in the global commons, the principle of CCH concerns resources that are within a particular State. The principle states that certain activities and resources can no longer be viewed as falling solely within the domestic jurisdiction of a State, but must be viewed as having consequences or importance with respect to humanity's collective interest in the global environment. The principle is reflected in the Biodiversity Convention, the Climate Change Convention, and Article 3 of the International Union for the Conservation of Nature (IUCN). Article 3 of the IUCN, for example, states the "global environment is a common concern of humanity." According to the commentary of Article 3, the principle is based "on the scientific reality that harm to the environment resulting from human activities adversely affect all humanity." It "implies acceptance of both the right and the duty of the international community as a whole to have concern for the global environment." The principle of CCH thus necessitates international cooperation.

International law, rather than U.S. national law, may best effectuate a policy that recognizes ANWR's global importance and the common concerns of the Porcupine Caribou Herd, polar bears, and migratory birds. In addition to local and national interests, the principle of CCH compels Congress to weigh the interests of the international community, including Canada that supports permanent protection of the 1002 Area from oil development. Canada's proposal to establish an International Wilderness Park (IWP) is consistent with the principle of CCH. An IWP would merge together the Vuntut and Ivvatik National Parks in Canada and the Arctic National Wildlife Refuge, including the 1002 Area.⁹⁶ An IWP would "encourage cooperation and coordination in the conservation and management of transboundary wildlife, as well as the

establishment of equivalent environmental protection for the whole region."⁹⁷ The IWP proposal is preceded by The St. Elias Mountain World Heritage Site (comprised of the Kluane National Park and Tatshenshini-Alsek Wilderness Park in Canada and Wrangel-St. Elias National Park and Reserve and Glacier Bay National Park in the U.S.) and the Waterton-Glacier International Peace Park (comprised of the Waterton Lakes National Park in Canada and the Glacier National Park in the U.S.). Both of these park systems are World Heritage Sites under the authority of the Convention Concerning the Protection of the World Cultural and Natural Heritage, ratified by the U.S. on July 12, 1973.⁹⁸ Under the Convention, "natural heritage" includes an area that constitutes the habitat of threatened species of animals and plants, and is of outstanding universal value from the point of view of science, conservation and natural beauty. The Arctic National Wildlife Refuge, including the 1002 Area, is such an area. From the perspective of the treaty and in light of the magnitude and gravity of the danger from oil exploration and development that threatens the area, it is incumbent on the international community as a whole to participate in its protection.

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Footnotes from Alaska: The Conflicted State of ANWR

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Introduction to the Kyoto Mechanisms

One of the Kyoto Protocol's most significant features is the incorporation of market-based mechanisms designed to allow Annex B countries to achieve their required emission reductions at a cost-effective level. No international environmental agreement to date has relied on flexible market mechanisms to the extent called for in the Protocol. The Protocol contains three such "Kyoto" mechanisms: joint implementation (JI, Article 6), the Clean Development Mechanism (CDM, Article 12), and international emissions trading (IET, Article 17).⁶ The common feature of these mechanisms is that they allow Parties to the Protocol to transfer greenhouse gas (GHG) emissions credits or units among themselves. None of the Kyoto mechanisms are fully defined in the Protocol, and they all will require significant additional clarification by the Parties before they can be used. Nevertheless, it is apparent that how these mechanisms are elaborated will influence both the implementation of, and compliance with, the obligations of the Protocol.

Article 4: Joint Fulfillment

Joint Fulfillment (JF) allows Parties with emissions reduction commitments to jointly meet those commitments by entering into an agreement that redistributes the total reductions among the parties to the agreement. Once the agreement is finalized and deposited with the secretariat,

the revised emission reduction targets for each participating Party becomes enforceable under the Protocol. This provision was originally introduced to allow regional economic integration organizations (such as the European Union) to make alternative distributions of the Protocol's reductions requirements amongst their members. During the course of negotiations, the provision was expanded to allow any group of Annex I Parties to enter into such an agreement.

Article 6: Joint Implementation

Joint Implementation (JI) allows for Annex BI Parties⁷ to transfer to or acquire from other Annex I Parties emissions reduction units (ERUs) associated with specific produced from projects that reduce GHG emissions or enhance removals from "sinks" in other Annex I countries designed to reduce emissions or enhance sinks of GHGs. Thus one a Party (or its authorized legal entities within its jurisdiction) entity may sponsor or finance a GHG reduction project in another Party's territory in exchange for some or all of the GHG reductions resulting from the project. Under Article 6 such arrangements must be approved by both Parties involved, must provide climate benefits beyond those that would otherwise occur, must

be supplemental to domestic action in the acquiring Party, and are prohibited if the acquiring Party is not in compliance with its accounting and reporting obligations under the Protocol. A transfer of When a Party transfers ERUs, it subtracts them from its is a subtraction from a Party's assigned amount.⁸, while a purchase of When a Party acquires them, ERUs is an addition to a Party's sit adds them to its assigned amount (Kyoto Protocol, Articles 3.10 and 3.11).

Article 12: Clean Development Mechanism

The Clean Development Mechanism (CDM) is designed intended to promote sustainable development in developing (non-Annex I) countries (i.e., developing countries) and assist Annex I countries to meet their emissions reduction requirements by creating a mechanism for providing Annex I countries with the opportunity to sponsor or finance GHG reduction projects in non-Annex I countries. Article 12 requires that emissions reductions must provide "real, measurable, and long-term benefits related to the mitigation of climate change" and provide benefits additional to those that would occur in the absence of the project. Emissions rReductions from CDM projects will be subject to a certification procedure that

Climate Change Links

EPA Climate Change Program
<http://www.epa.gov/globalwarming/index.html>

Global Environmental Facility
<http://athena.csee.umbc.edu:9080/ELIS/resources/www.gefweb.org>

United Nations Framework Convention on Climate Change
<http://www.unfccc.de/>

Greening Earth Society
<http://www.greeningearthsociety.org>

Climate Action Network
<http://www.climateactionnetwork.org/>

remains to be elaborated by the Parties. Nevertheless, Article 12 requires that emissions reductions must provide "real, measurable, and long-term benefits related to the mitigation of climate change" and provide benefits additional to those that would occur in the absence of the project. Annex I countries will be able to use certified emissions reduction units (CERs) to help meet their reduction targets under the Protocol. Legal entities may participate in CDM projects.

Article 17: Emissions Trading

Article 17 allows for the elaboration of a system of international emissions trading (IET) between Annex I Parties. Under a trading system, Parties (and potentially legal entities) would be able to buy and sell the right to emit GHGs. This would effectively transfer emissions from one country to another allowing the Parties to seek out the least-cost reductions. Thus a Party could offset its domestic emissions by purchasing emissions reductions from another Party if the cost of domestic reduction exceeds the cost of equivalent reductions in the other country. Both parties to a trade would adjust their domestic GHG calculations to reflect the trade: resulting in lower net emissions in the selling country and higher in the buyer country. The mechanics and parameters of the trading system require further elaboration by the Parties.

Liability under the Kyoto Mechanisms

Joint Implementation and the Clean Development Mechanisms are project-based mechanisms in which monitoring, verification and certification will, presumably, establish that the credits transferred represent genuine reductions. Therefore, this article will focus on emissions trading under Article 17 of the Protocol. This article is concerned with the issue of which Party to a trade bears responsibility for ensuring that the

rules that set out which Party to the transfer is responsible for taking action or foregoing use of transferred amounts to rectify the problem. Thus the responsibility in question is responsibility for exceeding assigned amounts in the case of Article 17 IET and Article 4 JF, and responsibility for shortcomings of green house gas *Hybrid Liability continued*

(GHG) projects in the context of Article 6 JI and the Article 12 CDM.

The presence of CI Kyoto Mechanisms mechanisms will to some extent complicate the question of whether a country is adequately implementing its emission reduction obligations. The emissions accounting rules will doubtless operate on some refinement of the following formula: total emissions equals domestic emissions minus total reductions bought plus total reductions sold.

Harmonized accounting rules will need to be developed so that all parties to the Protocol pursue the same approach to measuring implementation and compliance. While they may complicate the implementation/compliance picture on the one hand, on the other hand Kyoto Mechanisms CI could serve as a powerful implementation tool. For example, CI the mechanisms might be used prospectively to encourage Parties to comply with national reporting and institution

building obligations. Under this approach, only once parties have established reliable inventory and reporting procedures would they be allowed to join the group of trading partners.

In addition, the trading regime raises the possibility of suspending trading privileges in response to a failure to implement substantive emissions reduction obligations under the

The CIEL Climate Change Program

The Climate Change Program at the Center for International Environmental Law (CIEL) strives to protect the Earth's climate system while simultaneously promoting other environmental and social concerns, such as forest conservation, biodiversity protection, and human rights. CIEL has played an integral role advising major players in the international policy arena how to work towards a sustainable, enforceable emissions reduction framework. They have attended every session of the Conference of the Parties since the United Nations Framework Convention for Climate Change (UNFCCC) entered into force. CIEL has been intimately involved in the negotiations surrounding the Kyoto Protocol, which for the first time establishes binding, numerical emissions reduction targets for industrialized countries. For more information visit <http://www.ciel.org/ccp.html>

trade does not result in contributing to non-compliance by the transferring Party. While each Party to the Protocol bears the fundamental burden of faithfully executing its obligations under the agreement, the introduction of CI effectively emissions trading allows Parties to transfer a portion of their assigned amounts to other Parties. When such transfers result in the inability of a Party to meet its own obligations, how such obligation-busting transfers are treated requires

Protocol. Moreover, the inclusion of CI these mechanisms in the Protocol is likely to help form the political consensus necessary to build robust implementation and non-compliance procedures. Without such procedures, there would be no guarantee of the

(which may be assigned on a bi-lateral or contractual basis). Parties to trades can redistribute the financial consequences of the responsibility rules through contractual arrangement, but responsibility under the rules of the Protocol cannot be redistributed.

We believe that a hybrid liability rule based upon a *commitment period reserve* would ensure environmental integrity and liquidity of the trading system, and would provide a point of convergence for negotiators. Under our proposal:

Parties wishing to trade must establish a commitment period reserve of assigned amount units (AAUs).

The reserve is created by projecting a five-year emissions trajectory based upon prior emissions inventories.

The trajectory is adjusted each year to reflect the Party's annual emissions inventory and expert review of the previous year's inventory.

A Party's net assigned amount (adjusted for acquisitions and transfers) that is surplus to the reserve may be transferred under issuer, or seller, liability.

Assigned amount that is part of the reserve (i.e., not surplus) may be transferred under user, or buyer, liability. Some advocates of seller liability have argued that a rule utilizing buyer liability in whole or part would be unworkable because it could trigger a cascading "domino effect" of non-compliance. The effect would make it impossible for potential traders to evaluate the risk of purchases and impossible for Parties to determine whether their legal entities holding buyer liability AAUs were in compliance with their domestic obligations (which in turn would make it impossible for a Party to true-up). Under our proposal, the risk of a buyer liability-induced "domino effect" is eliminated by restricting the invalidation of buyer liability AAUs to those originating from Parties whose verified emissions for the commitment period exceed their gross adjusted assigned amount.

Gross assigned amount includes all of the buyer and seller liability AAUs held by a Party at the end of the true-up. After the true-up and expert review, a

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validity of traded units and few countries would want to be involved in trades where the value of traded units is uncertain. Naturally, Parties' interest in benefiting from CI will increase their willingness to comply with the rules for trading themselves.

Distinct from the question of which Party bears responsibility (which is decided by the rules implementing the Protocol) is the issue of assigning risk

The "liability" rule for Article 17 emissions trading will address the question of whether countries that participate in trading can redeem assigned amount units originating from Parties that exceed their targets at the end of the commitment period. The rule remains among the most contentious unresolved issues standing in the way of final agreement on this key Kyoto mechanism.

Party whose emissions exceed its gross adjusted assigned amount is subject to a finding of non-compliance.

Buyer liability AAUs originating from the non-compliant Party are temporarily invalidated on a last-in, first-out basis, and may not be used by any Party for compliance purposes until the originating Party remedies its excess emissions and returns to compliance. Parties holding temporarily invalidated AAUs will face a compliance proceeding if, after the invalidation, their net emissions exceed their adjusted assigned amount and they do not acquire sufficient "good" AAUs to make up the shortfall.

However, so long as a Party's emissions do not exceed its gross assigned amount—including all AAUs it holds at the end of the true-up, whether they have been invalidated or not—then any buyer liability AAUs originating from it will remain valid and may be used by other Parties and/or private entities for their own compliance purposes.

Buyer vs. Seller Liability

Much of the liability debate has focused on the two extremes of pure seller and pure buyer liability. Under pure seller liability, a Party that acquires AAUs through emissions trading can use them regardless how the Party from whom they originated ultimately performs. Advocates of pure seller liability argue that a strong compliance system

will prevent Parties from "overselling," because if they do transfer too much assigned amount, they will be subject to sanctions under the Protocol's compliance system. These advocates generally believe that a seller liability rule will be the easiest to administer and will best encourage trades to go forward so that the system flourishes.

Proponents of pure buyer liability respond that seller liability will encourage risky sales, because the buyer will have no incentive to seek AAUs from Parties who have the best chance of meeting their targets. They note two critical problems with seller liability systems. First, there is little assurance that the compliance system will be strong enough to deter overselling or adequately remedy excess emissions caused by overselling (especially if the overselling is due to poor management or planning, and not to "willful" behavior). Second, the largest "seller" countries may not have the technical, regulatory, and political ability to safeguard the integrity of their sales, nor the ability to remedy any emissions excess after it occurs.

Under pure buyer liability, some or all of the AAUs that originated from a Party that exceeds its assigned amount are discounted or invalidated. The discounted or invalidated AAUs could be returned to the seller to assist its own compliance, banked by the acquiring Party for its use when and if the issuer restores itself to compliance, or simply retired. Either way, the acquiring Party is not able to use the AAUs to meet its target for the commitment period from which they originated.

Generally, we agree that pure buyer liability is preferable to pure seller liability. Under seller liability, only one party to the transaction—the seller—need be concerned about the seller's compliance. The buyer has no reason to worry, because it will be able to use the tons it purchases regardless of the seller's performance. Under buyer liability, both parties care. The buyer cares because it may not be able to use some of the tons it purchased if the seller goes out of compliance. The seller cares because it can get a better price for its tons if it can assure the buyer that it is willing and able to comply.

A Better Idea: Hybrid Liability

We believe *hybrid liability* is preferable to either pure buyer or pure seller liability, because of the additional benefits it creates. These benefits include:

*Enhanced compliance,
Added flexibility,
Greater transparency.*

Enhanced compliance

Hybrid schemes require that the seller's performance be tracked during the commitment period. That performance will determine, in part, whether a Party can sell tons under seller liability (enabling it to get the highest price for its tons) or buyer liability (in which case it may not be able to sell at all). Thus, Parties that wish to sell have a strong financial incentive to comply with their obligations by staying within the system parameters (i.e., by not overselling or over-emitting).

Added flexibility

Under hybrid schemes, buyer liability AAUs and seller liability AAUs will be present in the market at the same time. Thus, purchasers have greater flexibility in designing their "portfolio" of AAUs. For example, buyers may seek to purchase enough seller liability AAUs to cover their expected excess emissions during the commitment period. In addition, they may choose to purchase some buyer liability AAUs as a cost-effective hedge against unforeseen emissions or to bank for subsequent commitment periods.

Greater transparency

Transparency is the essential ingredient of hybrid schemes. Buyers, regulators, and the public should have access on a

daily basis to information about trades. All information about trades should be recorded as they occur in a publicly available registry on an internet web site. That way, anyone with a computer will be able to see at a glance whether Parties are on track to meeting their commitments or veering off course.

The "Traffic Light" Approach

Two years ago CIEL proposed a "traffic light" liability system. This hybrid approach would allow all Annex B Parties to trade initially on a seller liability (i.e., "green light") basis. The combined rate of emissions and sales during the commitment period would be tracked for each Party. If at any time during the commitment period a Party exceeded its planned trajectory, a "yellow light" would be triggered and the Party could continue to sell only on a buyer liability basis.

It soon became apparent that this system had an inherent flaw: During the time it would take for Parties to submit emissions inventories (about a year), and perhaps have them reviewed by expert teams (another year), much damage could be done. A Party could vastly over-sell before the system caught the problem and triggered the yellow light.

Moreover, as noted earlier, some commentators objected that the presence of a buyer liability component could stifle potential trading because it could lead to a cascading, "domino effect" of non-compliance. They argued that this possibility would make it impossible for potential traders to evaluate the risk of purchasing buyer liability AAUs and impossible for Parties to determine whether their legal entities holding such AAUs were in compliance with their domestic obligations (which in turn would make it impossible for a Party to true-up at the end of the commitment period).

Our Proposal: A Commitment Period Reserve with a Limited Buyer Liability Component

Our proposal addresses the "time lag" and "domino" problems by (1) establishing a reserve of assigned amount units prior to the start of the commitment period and (2) limiting the potential invalidation of buyer liability transfers to transfers from Parties whose verified emissions exceed their *gross* adjusted assigned amount.

Commitment period reserve

The commitment period reserve is created by projecting a five-year emissions trajectory for the commitment period for each Party, based on its inventories submitted before the start of the commitment period. The projected emissions are held in reserve. If the projected emissions are less than the Party's assigned amount, the difference between the two is considered surplus.

The emissions trajectory and reserve are revised annually on the basis of the new inventory and an expert review of the previous year's inventory. If a Party's emissions are lower than expected, the surplus is increased. If they are higher than expected, the surplus is reduced.

Each year during the commitment period, the Party can sell an "annualized" portion of its surplus on a seller liability basis. In other words, during the first year of the period, it can sell up to one-fifth of its surplus under seller liability. During the second year, it can sell up to one-fourth of the remaining, adjusted surplus. During the third year, one-third, etc. Of course, based on their prior inventories and initial assigned amount (as determined by Annex B and Article 3.7), some Parties might not have any surplus, because their projected emissions (which equal their commitment period reserve) would always be higher than their initial assigned amount. However, Articles 3.10, 3.11, and 3.12 allow Parties to add to or subtract from their

assigned amount as they buy and sell through the Kyoto mechanisms. Thus, these Parties may transfer on a seller liability basis as long as their emissions are below their *net* assigned amount, which would equal their initial assigned amount adjusted to reflect transfers and acquisitions of ERUs, CERs, and AAUs).

It is important that the reserve be set to match a Party's actual emissions projections, and not some arbitrarily discounted number. Each Annex B Party's core obligation under the Protocol is to ensure that its aggregate emissions for the commitment period do not exceed its assigned amount. The incentive structure incorporated within the liability rule should be geared towards fulfillment of that core obligation. The rule should stimulate businesses to lobby their governments for effective, comprehensive national strategies for lowering overall emissions as early as possible, so that the country as a whole will have surplus assigned amount. It should help motivate Parties to lower their actual emissions by rewarding them with the ability to sell the resulting surplus assigned amount at the highest market price. That can be accomplished by giving Parties that hold surplus assigned amount the right to transfer their surplus under seller liability. Any rule that permits Parties to transfer their *non-surplus* assigned amount under seller liability will fail to take advantage of this important compliance incentive.

Transfers from reserve subject to limited buyer liability

Even allowing for acquisitions of assigned amount through the Kyoto mechanisms, some Parties may not be able to maintain a net surplus and thus will not be eligible to transfer AAUs under seller liability. These Parties may nonetheless believe it will be advantageous for their domestic businesses to have the freedom to sell AAUs on the international market. They may additionally fear that the opportunity for such businesses to sell under buyer liability will be an empty

one, because they may believe no one will be interested in such purchases so long as they could be subject to an unpredictable, seemingly endless "domino effect" triggered when an issuing Party fails to comply with its commitment period target.

Under our proposal, if such a Party (or such a Party's legal entities) wishes to sell non-surplus tons, it may sell them from the Party's commitment period reserve on a *limited buyer liability* basis. This buyer liability component lowers the risk that non-surplus transfers from the reserve could ultimately lead to the overall Annex B target being exceeded. In particular, it enhances the prospect of compliance by giving potential purchasers an incentive to evaluate the "credit worthiness" of the issuing country before they buy. At the same time, the limited aspect of this buyer liability component eliminates the possibility of a "domino effect" of non-compliance and invalidation of buyer liability AAUs, which in turn eliminates the main concern that some Parties and businesses have expressed about buyer liability.

After the end of the commitment period... period when Annex B Parties have submitted their final inventories, been reviewed by expert review teams (ERTs) pursuant to Article 8, and had an opportunity to true-up their excess emissions by acquiring additional tons via the Kyoto mechanisms—any Party whose net emissions still exceed its adjusted assigned amount will be subject to a compliance proceeding. Under "traditional" buyer liability schemes, if that Party is found to be in non-compliance, the AAUs it transferred under buyer liability are invalidated or recalled in an amount equal to its excess emissions. Any Party holding those invalidated or recalled AAUs may then not have enough assigned amount to cover its own emissions, and will consequently face its own finding of non-compliance. That finding would result in the invalidation or recall of AAUs it had transferred under buyer liability, which could in turn trigger a cascade of non-

compliance for even more Parties.

Under our proposal, any invalidation of buyer liability AAUs would be limited to the first "tranche" of non-complying Parties. In other words, invalidation would apply only to buyer liability AAUs originating from those Parties whose aggregate emissions exceed their *gross* adjusted assigned amount—where gross assigned amount includes *all of the buyer and seller liability AAUs held by a Party* at the end of the true-up.

"Invalidation" would be conducted in the same way proposed by the European Union in its "mixed liability" proposal (included as Option 5 in the current Mechanisms text). AAUs originating from a non-complying Party would remain in the registry of the acquiring Party and would not be returned to the issuer. The acquiring Party could retain and bank the invalidated AAUs pursuant to Art. 3.13, but could not use them for compliance purposes until the issuer remedied its excess emissions and returned to compliance.

Limited buyer liability precludes the possibility of an unpredictable "domino effect" of non-compliance. A Party holding invalidated AAUs will still face compliance proceeding if, after the invalidation, its aggregate emissions exceed its adjusted assigned amount and it does not acquire sufficient "good" AAUs to make up the shortfall.

However, so long as a Party's emissions do not exceed its *gross* assigned amount—including all AAUs it holds at the end of the true-up, whether they have been invalidated or not—then any buyer liability AAUs originating from it will remain valid and may be used by other Parties and/or private entities for their own compliance purposes.

Limited buyer liability allows each Party to evaluate the compliance of its legal entities with their domestic obligations within a finite time. Upon learning that some of the AAUs it held had been invalidated due to the issuer's non-compliance, the holding Party would notify its legal entities who had tendered the AAUs. The entities could

be given a brief time to either tender replacement AAUs or pay a significant fine.

Any uncertainty on the part of those entities and their home governments as to whether or not the buyer liability AAUs they had purchased were good would be resolved upon the determination of whether the issuing country's *gross* assigned amount was sufficient to cover its emissions. The entities would have presumably paid for the AAUs based upon the "credit worthiness" of the issuing Party and, depending on the perceived risk, would have made contingency arrangements (such as insurance, additional purchases, or options contracts) to protect themselves against the risk. But since the risk of invalidation will depend only on the performance of the "primary" issuing Party, and not upon the quality of the buyer liability AAUs the issuing Party (and/or its entities) may be holding, entities will not face the task of trying to evaluate an endless web of compounded risk. Accordingly, our proposal will allow buyer liability acquisitions to go forward as a viable option for entities and Parties, while simultaneously providing the sensible safeguards and incentives that buyer liability can bring.

Conclusion

The new hybrid liability rule we propose, based upon a commitment period reserve, solves the problems that were identified with the traffic light approach. Because trades can be registered in real time and made public on the internet, a "yellow light" trigger could operate virtually instantaneously. If a Party oversells without making sufficient upward adjustments to its assigned amount, it will immediately trigger a "yellow light" so that the sale is subject to buyer liability.

The new rule preserves the virtues of the traffic light and other hybrid systems. It enhances compliance by tracking emissions during the commitment period, adds flexibility by

giving buyers an option of purchasing either seller or buyer liability allowances, and increases transparency by requiring that all trades be publicly registered as they occur. Finally, it provides liquidity to the market by allowing buyer liability transfers in a way that does not expose potential purchasers to unmanageable risk.

Epilogue

Contrary to the hopes and expectations of nearly everyone concerned, negotiators at the Sixth Conference of the Parties, held at The Hague in November 2000, were unable to agree on the rules that would make ratification and implementation of the Protocol possible. This failure included the liability rules for emissions trading.

Some progress on liability was made, however, when negotiators appeared to agree that a commitment period reserve approach would represent the best opportunity for convergence between pure buyer and seller liability. Such an approach was included in the "Note by the President of COP6" distributed by Jan Pronk to the COP during the second week of the conference.⁹ In that document, President Pronk proposed that Parties retain 70% of their *assigned amount* as a commitment period reserve. In other words, the reserve would not be based upon real or estimated emissions, but simply a portion of the assigned amount each Party held at the beginning of the commitment period.

A reserve of 70% would mean that every Annex B Party could transfer up to 30% of its assigned amount under seller liability, regardless what its actual emissions were. While such a reserve could prevent a "rogue state" from selling all of its assigned amount and then quitting the Protocol, it would do little or nothing to prevent the more incremental overselling that probably represents the most likely risk. As such, in practical terms it would amount to a pure seller liability rule, which would be relatively easy to administer, but

would provide few incentives to prospective buyers and sellers to improve their emissions performance.

When ministers representing the United States and European Union briefly believed they had arrived at an agreement during an all-night negotiating session on the final night of the conference, they did not discuss the liability rule. After the short-lived "agreement" collapsed on Saturday morning, EU sources revealed that one of the things that led them to reject it was a belief that it implicitly assumed that the Pronk proposal for a 70% reserve would be adopted. Although the U.S. and its "Umbrella Group" allies generally support the Pronk proposal, the EU and most environmental groups have declared it to be unacceptable.

Footnotes from Hybrid Liability

⁹ An earlier version of this paper was distributed at the CIEL facility side event held in Lyon at SB-13, September 9, 2000. That version did not include the limited buyer liability component proposed in this paper.

¹⁰ 31 I.L.M. 849 (1992). The Convention called for the stabilization of greenhouse gas concentrations at a level "that would prevent dangerous anthropogenic interference with the climate system." Developed countries pledged to reduce emissions to 1990 levels. Specific guidelines for how this goal could be calculated were left to future Conferences of the Parties.

¹¹ FCCC/CP/1997/L.7/Add.1.

¹² 31 I.L.M. 849 (1992). The Convention called for the stabilization of greenhouse gas concentrations at a level "that would prevent dangerous anthropogenic interference with the climate system." Developed countries pledged to reduce emissions to 1990 levels. Specific guidelines for how this goal could be calculated were left to future Conferences of the Parties.

¹³ FCCC/CP/1997/L.7/Add.1.

¹⁴ Some commentators consider the joint fulfillment of "bubble" provisions of Article 4 to be an additional flexibility mechanism. However, because only the European Union has elected to take advantage of them, these provisions have not been elaborated by the UNFCCC Parties. The Parties have instead concentrated on negotiating the rules for J, the CDM, and emissions trading. For the purpose of this article, we include only Articles 6, 12 and 17 among the Kyoto flexibility mechanisms.

¹⁵ Annex I Parties include industrialized nations and economies in transition of the former Soviet bloc. Only these states will be subject to quantified emissions reduction commitments under the Protocol.

¹⁶ "Assigned amount" is the total quantity of greenhouse gases an Annex I Party is permitted to emit during the commitment period of 2008-2012.

¹⁷ Although the Note was ostensibly presented by President Pronk on his "personal responsibility," it was never clear to negotiators precisely what the legal status of the Note was. President Pronk offered it as a set of proposed compromises for the "tough issues" that promised to be the most difficult to resolve. But he failed to establish clearly what the relationship of the Note was to the legal texts that had already been significantly negotiated for the various issues. Some Parties interpreted the Note as nothing but a suggestion for further negotiations. Others understood it to supplement the negotiated texts.

¹⁸ Whatever the case, the Note was viewed by all participants as a significant document that at a minimum established a baseline for negotiations for all issues that it covered.

The Internationalization of the Amazon

By Manuel Nabais da Furriela^{1a}

As the world's largest tropical rain forest, with a fifth of the globe's fresh water, the preservation of the Amazon is a major concern of the international community. Such concern is heightened by the fact that it is also one of the largest carbon sinks, meaning that it helps to counter the effects of greenhouse gases, and therefore serves as an invaluable asset for curbing global warming. In addition, it contains a massive depository of biodiversity and its own indigenous cultures.

The Amazon encompasses over six and a half million square kilometers, spanning nine nations.¹ More than half of its area lies within Brazil, covering two thirds of Brazil's territory. Given the wealth of environmental benefits, economic opportunities, and cultural differences, it is no wonder that controversy surrounds the management of this geographically fragmented area. Interest groups, governments, and industries from around the world are locked in a debate over the sustainable development of the region. To date, this dialogue has failed to yield a consistent policy for managing this rich and diverse biome. Importantly, these efforts have had the unintended consequence of alarming and alienating Brazil, which has responded to fears of international encroachment by developing and militarizing the area. Within that context, this article examines the complex interaction of two often conflicting principles of international environmental law at work in the Amazon debate: sovereignty and the common concern of humankind.

Sovereignty vs. the Common Concern of Humankind

The sovereign right of a state to exercise control over its territory is a traditional, if not fundamental, principle of international law. This sovereignty extends to the limits of a nation's geographic borders and includes the sub-soil beneath and the airspace above it.² This right, however, is qualified, for example, by a state's general duty not to harm the interests, including the environment, of another state.³

Both the Stockholm⁴ and Rio Declarations⁵ state that the principle of sovereignty applies to the right of a state to develop its natural resources. Developing nations sought this recognition as part of their pursuit of a new international economic order (NIEO) that would give them more leverage

when dealing with developed countries. These "efforts to maintain control over their natural resources...conflict directly with the movement to liberalize trade and investment"⁶ and efforts to internationalize environmental protection.

The Stockholm Declaration⁷ recognized that some environmental issues are of common concern to all humankind.⁸ It notes that "[a] growing class of environmental problems, because they are regional or global in extent or because they affect the common international realm, will require extensive cooperation among nations and action by international organizations in the common interest."⁹ Subsequent international environmental treaties, including the United Nations Framework Convention on Climate Change¹⁰ and the Convention on Biological Diversity, repeatedly have endorsed this concept of global cooperation on environmental issues with international implications.¹¹ The Convention on Biological Diversity is particularly significant since it involves environmental protection of resources found within a nation's border.¹² The protection of the Amazon brings sovereignty and common concern of humankind clashing together. While the world may contend that coordinated action is needed to deal with the deforestation of the Amazon, difficulty exists in reconciling this idea with Brazil's right to exercise exclusive control over its territory.

The Pressure to Internationalize the Amazon

The "Internationalization of the Amazon" is a concept developed in Brazil that reflects the fear among Brazilians that the international community will invade or otherwise interfere directly with the Amazon. Since Brazil's independence, foreign companies, predominantly U.S. and European, have exploited the nation's natural resources. In addition to this commercial assault, the Amazon is often cited as a global resource that can assist with any number of international problems ranging from the practical to the absurd. The latter occurred during the 1960s when there was frequent talk of the Amazon as an eventual refuge in the event of nuclear war. While this may seem foolish in retrospect, military organizations in some foreign countries went so far as to finance scientific research on this proposal during the cold war. The idea of the Amazon as a "tropical fallout shelter" for the world represented the first steps toward its gradual internationalization.

In the 1970s, the movement reached full speed with the scientific discoveries of global warming and the importance of biodiversity. Suddenly, the Amazon was seen as the "lungs of the earth" and the globe's natural refuge for biodiversity. Overnight, every Hollywood movie star became an expert on the life-saving drugs that awaited discovery in some remote jungle.

In truth, no nation has ever suggested that the Amazon could become the property of the international community. The idea itself is absurd since many other regions or ecosystems are of equal importance to the world's ecology. Take the case of the extensive temperate forests of northern Europe, Asia, and America, for example, which sequester as much, or more, carbon and are also threatened by development. Likewise, in terms of biodiversity, the Chocó region that covers the Pacific coasts of Ecuador, Colombia, and Panama, is as rich as the Amazon. Yet, there are no calls to internationalize these regions.

To further complicate matters, most of the world's cocaine is produced in areas that abut the Brazilian Amazon. In Columbia, the drug trade is financing a civil war along Brazil's border. The Brazilian government is concerned that by pledging \$1.3 billion in aid to the government of Colombia to fight the drug cartels and their guerilla allies, the United States may further fuel the long drug war, eventually sending it spilling into Brazil. "We know that once the gringos have strengthened the army's hand there, we may get whacked too," said Mauro Sposito, head of the new Brazilian force here. "So this operation ("Cobra") was undertaken as a preventive measure, in anticipation of whatever problems may come our way."¹³ This operation concerns Brazil because it shares a large border with Colombia (about 1,600 square kilometers), almost all of which is covered by the Amazon rain forest. Because the Amazon rain forest is very dense, supervising the entire area is virtually impossible. As a result, one government estimate indicates that Brazil must invest around US \$10 billion over the next 5 to 10 years in military equipment and facilities if it hopes to adequately supervise the area.¹⁴

Brazil's Domestic Backlash

The term "Internationalization of the Amazon" is a concept that developed in Brazil based on its fear of an international military invasion or other direct interference in the area. Although the idea of taking the Amazon from Brazil and placing it under international authority may seem absurd to those outside the country, the concern is very real within Brazil. Brazilian politicians and the military, both of whom favor a thorough "development" of Amazonia as a means of protecting Brazil's claim to it, have criticized the activities of international environmental organizations and non-governmental organizations (NGOs) as an encroachment upon Brazil's sovereignty. Brazil's neighbors share this belief. In their declaration of San Francisco de Quito of March 1989,¹⁵ the foreign ministers of the Amazon countries repudiated any interference with the policies and measures of these states vis-à-vis the Amazon region. Taking an old argument of the Brazilian military, the former president of Brazil, José Sarney, even accused the industrialized countries of working toward the internationalization of the Amazon region under the pretext of environmental protection. He discounted the efforts of governmental and non-governmental agencies to protect the Amazon rain forest, labeling their actions malicious, atrocious, and dishonest. According to Sarney, the international criticism of the Brazilian Amazon policy was part of a larger campaign to prevent Brazil from using its natural wealth and becoming a world power.¹⁶

History of the Militarization and Economic Development of the Amazon

Established in 1964 and in control of Brazil's economy for 20 years, the military government vigorously pushed forward the development of Amazonia. Though the opening up of the Amazon frontier is in accord with the logic of Brazilian history, or rather its historic pattern of internal colonization, the military has influenced the economic penetration of the region. This campaign was intended to mitigate social conflict and to mobilize political support for the current regime. The military believed that tapping this vast area's resources would automatically

Amazon Links

Official Amazon link

<http://www.amazonia.org.br/amazon.htm>

World Bank link about Amazon

<http://www.worldbank.org/rfpp>

Government of Brazil (Portuguese)

<http://www.brasil.gov.br/>

Ministry of Environment, Hydro Resources and the Legal Amazon (Portuguese)

<http://www.mma.gov.br>

Socio-Environmental Institute

<http://www.socioambiental.org.br>

The Institute of Environmental Research for Amazonia

<http://www.ipam.org.br>

Conservation International of Brazil (Portuguese)

<http://www.conservation.org.br>

Internationalization of the Amazon (Portuguese)

<http://brasil.iwanp.com>

enhance the status of the country globally. At the same time, penetration of Amazonia offered new prospects for strengthening the economic base of the military and for opening up testing grounds for special military projects, including nuclear installations. Importantly, by developing and militarizing the area, the Brazilian military governments also sought to preempt the internationalization of the Amazon by establishing sovereign control over the region. With this goal in mind, they delineated several projects to develop and integrate the region. During the period of 1964 to 1984, Brazil's economy grew to become the eighth largest in the world. Domestically, it began producing everything from needles to supersonic aircraft. It also developed an impressive military-industrial complex. Aside from increasing the size of Brazil's economy and military, the government had the following goals:

- the need for 'national integration,' which would bring the Amazonia and its resources into the country's economic mainstream;
- the need for "physical integration" of Amazonia into the rest of the country to ward off foreign geopolitical interests;
- the need to provide a proper response to the pressure of national and transnational companies with respect to the use of the region's resources.

The basic instruments used to pursue these objectives included direct investment by the Federal government of Brazil in infrastructure, including providing fiscal incentives to private businesses under the supervision of a federal agency. Large programs or projects, either government-sponsored or government-inspired, were organized and supported. Fiscal incentives, including total or partial exemption from federal and state taxes, as well as credits and subsidies, were created as the backbone of the economic policy for the region. Importantly, the government's initial investments in infrastructure were directed at constructing new roads to provide access to and facilitate further development in Amazonia.

The combination of these two factors, fiscal incentives and new roads, succeeded in finally opening the region to Brazilian and international capital. Big businesses and private entrepreneurs acquired large tracts of land, often for speculative purposes only.¹⁷

The Amazon in the Post-Military Era

The military's fall from power in the mid-1980s did not signal a retreat from the Amazon area. The continuation of the Brazilian doctrine of national security allowed the military to continue with its self-proclaimed task of "bringing the region home to the country." Ecological

considerations had little weight compared to this national challenge. Amazonia had apparently turned into an exercise in geopolitics. From a geopolitical viewpoint of maintaining territorial status quo with its neighboring countries, the problem of Amazonia for Brazil was not one of too many people working in the area but rather one of too few. Consequently, the military steadily increased its presence in the border regions. To this purpose, the Brazilian government initiated the "Calha Norte" ("north roof gutter") project in the early 1980s, later supplementing it with a similar project along the Bolivian border. Along with the region's new infrastructure, the two projects provided strong incentives for private investment in the area. At the same time, the militarization of the northern border has exacerbated the civil war in Columbia between the government and Revolutionary Armed Forces of Columbia (FARC), that has at times spilled over into Brazilian territory. The recent announcement of a massive U.S. military aid package for Columbia will most likely further



escalate fighting along the Colombian-Brazilian border and lead to an even greater buildup in Brazilian forces and infrastructure, complicating efforts to protect the Amazon.

Recent Opinion in Brazil

One might be tempted to dismiss these concerns and policies as relics of Brazil's military-industrial complex. Unfortunately, the perceived threat of "internationalization" can be found in the media as well. For instance, in an article for the Brazilian magazine, *Manchete*, the well-known journalist Carlos Chagas accused the developed countries of wanting to take the Amazon away from the Brazilians. To illustrate his point, he quoted several distinguished

A Defense of the U.S. Position on Labeling Genetically Modified Organisms

By Sally R. Kirsch¹

GMO's and the Precautionary Principle

Since its inception in the early 1970's, the field of biotechnology has rapidly expanded. In its simplest application, biotechnology is the insertion of a specified protein chain (gene) into the DNA of another organism creating a genetically modified organism (GMO). This change in the structure of an organism's DNA results in the manifestation of a specified characteristic by the modified organism. This technology has numerous beneficial applications, from drugs and food to cloning, however these benefits harbor numerous potential risks. Currently, one of the most controversial applications of biotechnology is to food products intended for direct human consumption.

Biotechnology has been used in plants to create drought resistant corn and soybeans, increase the nutritional content of core food crops, create pest resistant plants, as well as more cosmetic applications such as the creation of a tomato whose consistency remains stable longer. Currently, genetically engineered plants make up over one-third of our soybean crop and one-quarter of our corn crop. Over 98,600,000 acres were planted with genetically engineered plants in 1999. While there is no scientific evidence that genetically modified organisms are harmful to humans or the environment, some consumer advocates and environmentalists argue that a precautionary approach should be used

when dealing the GMOs.¹

The precautionary principle is elaborated in the Rio Declaration which states that "[w]here there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental damage."² This principle has been adopted in numerous international environmental instruments including the Preamble of the Biodiversity Convention³ and Article 3.3 of the United Nations Framework Convention on Climate Change.⁴ The principle developed in recognition that scientific "certainty" often comes too late to prevent environmental harm. It does not dictate what action to take, but rather it advises when a policy should be considered: before the harm has taken place.⁵ In theory this seems uncontroversial, but in application it has many pitfalls. Bodansky points out that it is "impractical to view every activity with suspicion."⁶ The international community has taken the precautionary principle to mean that GMOs should be labeled while the United States takes the opposite position.

Americans have been reluctant to accept genetically engineered foods, Calgene's "Flavr-Savr" tomato did not receive a round of applause from consumers, and the sale of the tomato seems to have stalled in the Mid-West. Recently, large food producers, such as Frito-Lay and Gerber, have abandoned the use of genetically engineered soybeans and corn in their products. The question is, why? As of yet there have been no studies revealing deleterious side effects or other health

risks from these products, and consumers have not yet gone so far as to boycott these products.

In the absence of hard scientific proof that these products are dangerous, certain consumer groups have been fanning the flames of opposition. Yet, even given the rising concern in the U.S., consumers continued to purchase these products. There are various reasons for the public's continued purchase of genetically engineered foods. One theory is that consumers are neither afraid of, nor opposed to the use of these products in their food. The other theory is that American consumers have had no choice but to eat these genetically engineered ingredients – the consumer simply does not know which products contain, and which products do not contain, genetically engineered material.

The American public wants to see this information on the label – polls taken by Time and MSNBC in January 1999 and January 2000 respectively, showed that 81% of the people who responded were in favor of labeling genetically engineered products. However, both the FDA and industry claim that labeling should not be mandatory.

FDA maintains the position is that genetically engineered plants are no different from their traditional counterparts, therefore the fact that the product is genetically engineered is not material information and does not need to be labeled with anything but the food's common or usual name (e.g. 'corn', 'soybean'). Consumers seem to feel otherwise, and there are a number of vocal groups seeking change. Whether or not labeling would actually affect the decision to purchase a

product is, as of yet, unknown. Possibly, consumer reaction would be similar to that of the decision to purchase an organically grown product – it would be a decision based on personal preference and beliefs about health and lifestyle. No matter how a consumer purchase decision is made, the debate is on as to whether these products should bear a label. A number of consumer groups have launched a “Consumer Right-to-Know” campaign to require labeling, and some states have taken similar ballot initiatives. In the absence of state power to require labeling, Congress has proposed legislation that would require such products to bear a label.

Though these products do not bear a label, they have not gone unregulated. The US Government regulates biotechnology under three separate agencies – the EPA, the USDA, and the FDA. By the time genetically engineered food products reach the market place they have gone through a series of government approvals and are quite fit for human consumption. In the absence of health risks, manufacturers who use genetically modified products should not be required to label these products. However, though consumer apprehensions about genetically engineered foods may be unfounded, an individual does have the right to make a free and informed purchasing decision, therefore manufacturers who prefer not to use genetically engineered products should be free to provide a label to that effect. This form of labeling would be akin to the “organic” and “Kosher” labels that are found on food products that meet those qualifications.

This paper briefly examines the international position on labeling GMO's, then looks at the U.S. Food and Drug Administration's policy regarding labeling GMO's and concludes by defending the U.S. position.

International Application of the Precautionary Principle to GMOs

All foods sold in the EU that contain GMOs must be labeled.⁷ This requirement is triggered by the presence of DNA or protein resulting from genetic modification.⁸ The EU regulations provided for the accidental presence of GMO material by requiring that products containing less than 1% of GM material do not have to be labeled.⁹ The specific requirements of a GMO label are contained in Commission Regulation 50/2000. The objective of these EU policies is to “promote a balanced approach to biotechnology and GMOs in particular. The public needs to be assured of the highest protection of public health, and the environment, including the protection of biodiversity. At the same time they need to be able to make an informed choice with regard to GMO products.”¹⁰

The EU position is echoed in the work of the Codex Alimentarius Commission, a joint project of the World Health Organization (WHO) and the UN Food and Agriculture Organization (FAO). The Codex Committee on Food Labeling met in May 2000 to draft recommended changes in the general standards for labeling of prepackaged food. These draft standards take into account GMO issues and will be presented to the general meeting of the Codex in 2001. The committee's recommendations call for mandatory labeling of food or ingredients that contains an “organism in which the genetic material has been changed through gene technology in a way that does not occur naturally by multiplication and/or recombination.”¹¹ The Codex negotiations are important because they reflect a growing consensus in the international community on the issue. This is especially important since the issue of GMO trade and labeling is expected to be included in the next round of WTO negotiations.¹² The GMO issue proved to be a major stumbling block at the WTO Ministerial in Seattle last year.

One of the most important recent developments in international GMO labeling is the Biosafety Protocol to the Convention on Biological Diversity that regulates the transboundary movement of bio-engineered organisms.¹³ The Protocol refers to these GMOs as “living modified organisms” (LMO). It provides that a party must have the advanced informed agreement (AIA) of an importing country prior to the shipment of the LMO. The label of an LMO that is intended for introduction into the environment must contain the identity and relevant traits of that LMO. Commodities that are not intended for introduction into the environment, including food, need only state that the product “may contain” LMO and specify a contact point for further information.

The EU regulations, Codex draft, and Biosafety Protocol each reflect a view that the precautionary principle requires labeling of GMOs. Contrast this to the US policy.

US Regulation of GMOs

In 1976, concerned about the risks associated with research of biotechnology applications, the National Institute of Health published biotechnology research guidelines for their grant recipients, which were adopted by other government agencies as well as private industry.¹⁴ After the initial research is completed, the product continues to be regulated under a coordinated framework. This coordinated framework was published in 1986 by the Office of Science and Technology Policy as the “Coordinated Framework for Regulation of Biotechnology; Announcement of Policy and Notice for Public Comment.”¹⁵ The cornerstone of the policy was that the existing laws of the FDA, the EPA, the USDA, the NIH and the OSHA would adequately cover this new and burgeoning technology.¹⁶ As discussed above, the NIH issued guidelines for research on biotechnology. Though these

Alumni Profile: Romina Picolotti

Romina Picolotti is the Founder and Executive Director of the Center for Human Rights and the Environment (CEDHA), located in Cordoba Argentina.

CEDHA is the only non-governmental organization in Latin America uniquely dedicated to the defense and promotion of the environment and human rights, serving as a bridge between these two areas of international law. CEDHA works with civil society leaders, non-governmental organizations, the academic sector, public sector servants, and other actors, providing advisory assistance, training and resources to address environmental and human rights concerns. CEDHA objectives are to develop and strengthen: a) the awareness of the linkages between the environment and human rights, further advancing environmental and human rights legislation at the local and international levels; b) the capacity and ability of judges, attorneys, advocates, and other actors to address the local and international defense and promotion of the environment and human rights through the linkages between these two areas of law; and c) resources that provide tools to successfully defend and promote environment and human rights at the local, national, regional, and international levels.

Ms. Picolotti is a graduate of the National University of Córdoba, Argentina. In addition she holds a Masters Degree in International Law from the American University's Washington College of Law where she is a member of the adjunct faculty teaching human rights and the environment. She has worked with international and multilateral institutions in Latin America, Asia, and United States (including the United Nations, the Organization of American States, and numerous non-governmental organization) advocating at the local and international level.

In 1995 she joined an international task force of human rights advocates to assist Cambodia in reestablishing its judicial system following an era of egregious human rights violations. She served as advisor and trainer to the Cambodian Judicial System, mentoring judges and prosecutors on legal theory and practice, training prison staff and police on human rights and facilitating human rights and other civil society groups' participation in the judicial process. She later joined the International Human Rights Law Group in Washington, DC as Legal Officer for Latin America, where she focused her work on defending and promoting human and environmental rights of indigenous communities, Afro-Caribbean populations, and women. Ms. Picolotti designed the Law Group's Nicaragua Program offering in situ mechanisms strengthening civil society and improving access to justice. As Latin America Legal Officer of the Law Group, Ms. Picolotti headed international litigation before the Inter-American Commission and Court on Human Rights, identifying victims of human rights and environmental abuse and bringing their complaints to the Inter-American system.

She has extensive experience in the International Human Rights System, having worked with various actors of the system, including the Inter-American Commission on Human Rights where she reviewed and analyzed petitions for admissibility and legal substance, and with the Washington based Center for Justice and International Law (CEJIL), reviewing and preparing cases going before the system. Ms. Picolotti works in collaboration with other prominent institutions dedicated to the defense and promotion of human rights and environmental law. She regularly works with the faculty at American University in reviewing and analyzing elements of international law in select cases before the Inter-American System. Ms. Picolotti also litigates in tandem with other non-governmental organizations such as CIEL, CEJIL, and the Indian Law Resource Center, in the preparation and defense of cases before the Inter-American System.

As part of an international strategy to foster environmental issues in human rights tribunals, CEDHA has filed several amicus briefs before the Inter-American Human Rights System pressing the system to recognize environmental human rights cases. In the first landmark case in defense of the Awas Tingni Indigenous Community of Nicaragua, the Inter-American Court on Human Rights admitted the brief, prepared by CEDHA and the Center for International Environmental Law (CIEL), which argues in favor of protecting the crucial linkage between the environment and the human rights of the Awas Tingni. The tribunals succeeded in halting logging concession in indigenous territories. In the second case, involving the Wichi and other indigenous peoples of Argentina, another case with high environmental and human rights content, the Inter-American Commission pressed the Argentine government to move towards a friendly settlement, halting public works in a multi-million dollar transnational road project linking Brazil to Chile (through Argentina), cutting through the heart of protected indigenous territories threatening the extinction of the culture and lifestyles of the Wichi, Chorote, Chulupi, Toba, and Tapiete communities. Again, CEDHA and CIEL prepared a brief that was accepted by the Commission. The Court and the Commission's decisions in each case have had significant precedence indicating that international human rights tribunals have begun to recognize the symbiotic relationship existing between human rights and the environment.

For more information about these briefs or the Center for Human Rights and the Environment (CEDHA) visit <http://www.CEDHA.org.ar> or contact Professor Picolotti at romina@cedha.org.ar.

GMO Article continued from page 22.

guidelines are not mandatory, federal assistance can be withdrawn if the researcher does not abide by the requirements. The guidelines focus on containment procedures which are based on the risk the organism might pose, and there are "increasingly stringent containment conditions" for each of four biosafety levels.¹⁷ After the technology itself has been researched, its application is subject to regulation primarily under three government agencies – the Environmental Protection Agency, the United States Department of Agriculture, and the Food and Drug Administration. The USDA regulates plant pests, plants, and veterinary biologics. The EPA is the agency with primary authority over the regulation of pesticidal biotechnology. Thus, the EPA's regulatory authority enters only where the plant contains a pesticidal component, for example Bt Corn, which has a pesticidal effect of the European Corn Borer and Bow Weevils. The Food and Drug Administration (FDA) regulates foods with GMOs.

Like the USDA and the EPA, the FDA regulates bioengineered products under its existing regulatory framework. The FDA becomes a party to the regulation of these products only as they near commercialization. FDA made clear in 1992 that it regarded biotechnology as a mere extension of the practices of genetically manipulation that have been practiced since the inception of agriculture. In general, the FDA's position has been that where a modification is made to a plant, so long as the new plant variety is sufficiently close to its traditional counterpart in composition, nutritive value, utility, and the like, the common or usual name still applies. The FDA regulates these plans under the FDCA in terms of both pre-market approval and labeling. Discussed below is a general overview of the regulatory structure under which FDA regulates the labeling and classification of genetically modified foods.

FDA: General Labeling Requirements

The policy of the Federal Food, Drug, and Cosmetic Act (FDCA) is "to insure the consumer that foods are pure and wholesome, safe to eat, and produced under sanitary conditions...and that all labeling and packaging is truthful, informative, and not deceptive."¹⁸ Two primary principles found in the FDCA §§ 403(a)(1) and §201(n) guide FDA's labeling requirements respectively. The first guiding principle, § 403(a)(1), is that food labels must not be "false or misleading in any particular."¹⁹ A food will fail this test if it omits essential information²⁰ such as ingredients; net weight; name and address of the producer; and name of the food to be provided.²¹ The second guiding principle, found in FDCA §201(n) states that labeling is misleading to "the extent to which the labeling or advertising fails to reveal facts material in light of such representations or material with respect to consequences which may result from the use of the article to which the labeling or advertising relates."²² FDA has interpreted the second part of §201(n) to require the labeling of ingredients that may adversely affect a consumer. The FDA has a separate policy regulating food additives. Food additives are:

*substances which may by their . . . intended uses become components of food, either directly or indirectly, or which may otherwise affect the characteristics of food. The term specifically includes any substance intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding the food, and any source of radiation intended for any such use.*²³

Food additives are subject to pre-market approval by FDA under §409.²⁴ To obtain approval, the manufacturer must prove to the FDA that the material is safe for human use. Even though, §409 requires food additives to

obtain pre-market approval, there are three important and extensive classifications of additives which are exempt from the testing and approval requirement. The first category is materials that are generally recognized as safe (GRAS). The second category is materials that are subject to prior sanction, and the third category is materials that fall within a specific exemption, such as color additives, pesticide residues in or on raw agricultural products, and new animal drugs.²⁵ The materials that fall into these three categories are permitted to be used in food without pre-market licensing and testing under §409. For GRAS materials, the burden is on the manufacturer to assure that the material is GRAS. In determining if the material is GRAS, the manufacturer has the option of consulting with FDA to assure that such a determination is appropriate. A GRAS material generally has a long history as a component of human food or is simply not considered to be enough of a threat to warrant pre-market review.²⁶

Though these materials are not subject to pre-market approval and testing under §409, FDA requires that all food additives, whether or not they are GRAS, to be labeled under §201(s). However, there are exemptions from the labeling requirement. Food ingredients are exempt from the labeling requirement when they are have been used as processing aids, present in insignificant amounts, and have conformed to the requirements of §409.²⁷ Incidental ingredients are those that are not intended to be part of the food and serve no functional use in the finished food product or are "processing aids". These additives are often used in processing and manufacturing food and have to do with the method of production and do not constitute an ingredient. Processing aids ride along with a functional ingredient and do not have any function in the finished food product, examples include pH adjusters and anti-caking agents used in salt.

FDA: Labeling GMOs

FDA regards genetically engineered material in food as an "additive" under FDCA §201(s). FDA's position on genetically engineered foods and the related labeling requirements was published in their 1992 policy on "New Plant Varieties".²⁸ FDA's policy rests on a single rationale. This rationale, as stated in the overview of the policy, is that "[t]he regulatory status of a food, irrespective of the method by which it is developed, is dependant upon objective characteristics of the food and the intended use of the food (or its components)."²⁹

FDA regulates the safety of genetically engineered foods primarily under two sections of the FDCA, thus covering both post-market and pre-market health and safety issues. FDA regulates post-market safety under § 402(a)(1). Under §402(a)(1) the burden is on the producer to ensure that the food is not "adulterated". An adulterated food is one that is considered to have "an added poisonous or deleterious substance that may render the food injurious to health or a naturally occurring substance that is ordinarily injurious."³⁰ Adulterated foods are unlawful and to subject various sanctions, from removal from the market to criminal prosecution by FDA.³¹

To assure pre-market safety, FDA regulates genetically engineered foods under §409 – the food additives amendment. New, genetic material being added to plants is considered an additive. "The statutory definition of 'food additive' makes clear that it is the intended or expected introduction of a substance into food that makes the substance potentially subject to food additive regulations."³² Thus, FDA requires that the components being added to the new plant variety be GRAS, or they will be subject to pre-market testing and approval.³³ FDA position is that most of the new plant varieties will contain GRAS material,

*When the substance present in the food is one that is already present at generally comparable or greater levels in currently consumed food, there is unlikely to be called into question the presumed GRAS status of such naturally occurring substance. Likewise, minor variations in molecular structure ... would not ordinarily affect the GRAS status.*³⁴

It is only where a genetically engineered product is "significantly different in structure, function, or amount than substances currently found in food" that FDA treats it as a food additive, therefore requiring the same testing and pre-market approval that is required of other additives.³⁵ Genetically engineered crops that are indistinguishable from traditional food crops are not treated as additives, thus requiring no pre-market approval.³⁶

FDA's policy regarding labeling of genetically engineered materials hearkens back to the original theme of the 1992 policy – the new foods are subject to an objective standard, which is not based on the process through which they are produced. Thus, the FDA does not require these product to bear any special labeling.³⁷ FDA relies on the existing regulatory structure of §403(a) for labeling genetically engineered foods in the 1992 policy. FDA maintains that consumers need only be informed on the label when "a new plant variety differs from its traditional counterpart such that the common or usual name no longer applies, or if a safety or usage issue exists to which consumers must be alerted."³⁸

When posed with the question "Why won't there be mandatory labeling of genetically engineered foods?" FDA responded that "All plant breeding involves genetic manipulation of plants."³⁹ This is indeed true. Humans have been genetically engineering plants since agriculture was first developed. Genetic manipulation, whether by crossbreeding or

manipulating DNA, is not a new concept. However, people have been preparing foods since time began, and FDA still requires ingredients to be listed. FDA's point is not that genetic manipulation has always occurred, but rather that the manipulation of the plant is a *process* used in creating the food product. The FDA maintains that it "...does not require labeling to describe what technique was used in the development of a new variety..."⁴⁰ Only "[w]hen the technique is used to significantly change the composition of a food, then labeling will be required."⁴¹ If the common or usual name of the plant would no longer apply, labeling would have to indicate this or risk being misbranded under §403(a). To date, a genetically engineered food has not been required to bear such a label.

In sum, FDA's policy requires special labeling for genetically engineered foods only if:

1. a [genetically engineered] food would need to be called by a different or modified name if its composition were significantly different from its conventionally grown counterpart
2. the nutritive value has been significantly altered
3. safety issues exist: such as presence of an allergen⁴²

In each of the above situations, the burden is on the manufacturer to prove that the genetically engineered food is no different from its traditional counterpart. FDA policy does encourage developers of genetically engineered foods "to consult with the agency before marketing, to ensure that all safety and regulatory questions have been fully addressed."⁴³ It is the view of the industry that this consultation is voluntary – in order for it to be mandatory it would need to go through the traditional rulemaking process under the Administrative Procedures Act.⁴⁴ Thus, GRAS-ness is initially an industry determination and industry may never actually consult with the FDA when making the

determination. Given the public's increasing awareness of the lack of regulatory oversight in this area, there has been pressure on the FDA to make the consultation process a mandatory one. The issue that concerns a wide portion of the food producing industry is that a change in FDA policy would have an adverse effect on the regulatory structure for *all* GRAS material, not just genetically engineered foods. It is most likely and most sensible, however, for the FDA to structure a rule which specifically targets genetically modified foods in this arena. The FDA would need to do this delicately, so as not to create a public relations catastrophe for the biotech industry by creating the assumption that these products are inherently dangerous given the already skeptical public perception of genetically engineered products.

The Courts: Consumer Right-to-Know

The current controversy over labeling genetically engineered material in food is akin to the recent battle over the presence of Recombinant Bovine Somatotrophin (rBST) in milk. RBST is a genetically manufactured hormone that is equivalent to bovine growth hormone naturally produced by cows. The effect of this hormone is to increase both growth and milk production in cattle.⁴⁵ By treating cattle, a dairy producer can control both the volume of milk the cows produce and when they produce it.

There has been significant controversy between the public, industry and the government in regard to rBST. Though there is no detectable difference in the levels of rBST found in milk from treated versus untreated cows, and consumers cannot taste the difference, the public has been generally adverse to the idea of treating cows.⁴⁶ Consumers have objected to the use of rBST because of the potential "debilitating effects the drug may have on animals...the unknown and long term impact that use of the drug might have on human health...[and] the drug's potential to

affect the socioeconomic foundation of the dairy industry."⁴⁷ Like all genetically engineered products, because the treated milk was indistinguishable from traditional untreated milk, FDA does not require treated milk to be labeled.⁴⁸

In response to this policy, Vermont passed a statute requiring that "[i]f rBST has been used in the production of milk or a milk product for retail sale in this state, the retail milk or milk product shall be labeled as such."⁴⁹ Various dairy producers filed suit seeking preliminary injunctive relief keeping the statute from being enforced. Their claim was that this statute violated both the First Amendment and the Commerce Clause. The plaintiffs First Amendment argument was that they were being forced to speak against their will. Vermont defended its position by asserting that it has a substantial state interest in the labeling requirement because its citizens desired and needed this information to make an informed purchase decision. The 2nd Circuit Court held that the statute indeed violated the First Amendment.⁵⁰

The Court discussed the application of the First Amendment to commercial speech and applied the Supreme Court's test in *Central Hudson*⁵¹ to determine whether Vermont's statute violated the First Amendment protections on commercial speech. The *Hudson* test has four parts: "(1) whether the expression concerns lawful activity and is not misleading; (2) whether the government's interest is substantial; (3) whether the labeling law directly serves the asserted interest; and (4) whether the labeling law is not more extensive than necessary."⁵² The state's interest in the speech must "demonstrate that the harms it recites are real and that its restriction will in fact alleviate them to a material degree."⁵³

The court ultimately determined that Vermont had failed to meet the requirement that the state's interest be substantial and held that "...consumer

curiosity alone is not a strong enough state interest to sustain the compulsion of even an accurate, factual statement."⁵⁴ Thus, a state cannot force manufacturers to speak against their will – it is a violation of First Amendment rights. The Second Circuit noted that "[w]ere consumer interest alone sufficient, there is no end to the information that states could require manufacturers to disclose about their production methods."⁵⁵

The question that naturally arises is what makes information material or essential enough to require disclosure under the FDCA as well as what constitutes a substantial state interest. As discussed above, FDA believes that information about a food is material only when that food is significantly different in composition or function from its traditional counterpart. FDA's view is an objective standard of structure and function at the time of consumption. The consumer view differs in a fundamental way from FDA's view. The consumers' view focuses on the product at the time of production, rather than at the time of consumption. Thus, if the process by which the food is produced is materially different from the way a traditional food is produced, that fact warrants labeling.

Recent Developments in the US

Legislation has been introduced in both the US House⁵⁶ and Senate⁵⁷ to require labeling of genetically engineered material in food products. Both bills clearly state that genetically engineered foods and ingredients are "material" and therefore must be labeled for the consumer. These bills clearly overrule the FDA's 1992 Policy. Each bill was still in committee at the close of the 106th Congress and little movement seems likely in the near future.

House Bill

On November 16, 1999, the "Genetically Engineered Food Right To Know Act" was put before the

House "to require that food that contains genetically engineered material, or that is produced with genetically engineered material, be labeled accordingly."⁵⁸ The Bill clears up the question of whether genetically engineered foods are "material". It simply states that the "process of genetically engineering foods results in the material change of such foods."⁵⁹

The Bill amends FDCA §403 to include a section requiring that all foods that contain a genetically engineered organism or material (even if undetectable) to be labeled with the following:

GENETICALLY ENGINEERED
UNITED STATES GOVERNMENT
NOTICE: THIS PRODUCT
CONTAINS A GENETICALLY
ENGINEERED MATERIAL, OR
WAS PRODUCED WITH A
GENETICALLY ENGINEERED
MATERIAL.⁶⁰

Senate Bill

Also titled the "Genetically Engineered Food Right-to-Know Act", the Senate version was introduced on February 22, 2000 by Sen. Barbara Boxer (D-CA). This bill is substantially similar to the House version, though there are a few important exceptions worth noting.

First, the Senate bill contains findings far more specific than the House version. S. 2080 makes the comparison between the consumers right-to-know "whether food contains artificial colors and flavors, chemical preservatives, and

artificial sweeteners by requiring the labeling of such food." This finding clearly draws the parallel between the labeling requirements for food additives, and the lack thereof for genetically engineered material. The House version does not make such an explicit finding. Both bills find that the labeling would give consumers the control that they lack when deciding if they want to purchase genetically engineered food.

The second significant difference between the House and the Senate version is the label that would appear on the foods.

S. 2080 would require the following label:

GENETICALLY ENGINEERED.
THIS PRODUCT CONTAINS
GENETICALLY ENGINEERED
MATERIAL, OR WAS PRODUCED
WITH A GENETICALLY
ENGINEERED MATERIAL.

The noticeable difference is the lack of the phrase "UNITED STATES GOVERNMENT NOTICE." This phrase is akin to a warning, though it purports to be a "notice." To a consumer the notice might appear to add a level of protocol that indicates that the product is somehow unsafe. The proposed Senate label seems to be more neutral, and more aligned with the labels currently required for food additives, such as sulfites.⁶¹

S. 2080 also allocated \$5,000,000 in

grants to research the effects of genetically engineered foods. This research is obviously needed since both bills fail to allege that there are any *actual* health or environmental threats from genetically engineered products.

On the administrative front, the FDA announced in May that it would develop guidelines for a voluntary labeling program.⁶² The labels will simply state, in a truthful and straightforward manner, if the product or ingredients contain genetically modified organism. The draft labeling guidelines will be developed with focus groups and presented for public comment.

Conclusion

The FDA recently announced its guidelines for voluntary labeling of foods that do not contain GMOs. The public position on genetically engineered foods, as expressed in Congress, seems to be that these products need to be labeled in order for the consumer to make an informed decision. Should this congressional initiative pass, the consumer will have an additional piece of information to contemplate when purchasing food. Whether or not these labels will be truly important to the consumer in making a purchasing decision remains to be seen. Similarly, whether or not these labels will help or hinder the advent of this new technology remains to be seen.

A question that remains unanswered in this debate over labeling is whether labeling the manufacturing process,

GMO Web Resources

CODEX ALIMENTARIUS COMMISSION.
<http://www.fao.org/es/esn/codex/>

WTO - Sanitary and Phytosanitary Measures
http://www.wto.org/english/traftop_e/sps_e/sps_e.htm

EU Commission - Food Safety
http://www.europa.eu.int/comm/food/index_en.html

FDA - Food Safety
<http://vm.cfsan.fda.gov/list.html>

Convention on Biodiversity/Biosafety Protocol
<http://www.biodiv.org/>

CIEL - Trade & the Environment
<http://204.127.239.82/tae.html>

Consumers Choice Council
<http://www.consumerscouncil.org/>

Biotechnology Industry Organization
<http://www.bio.org/welcome.html>

such as GE foods and rBST, will diminish the FDA's objective of providing consumers with only the material and essential information. Given the lack of scientific evidence that genetically engineered plants pose a risk⁶³ labeling the presence of a genetically modified material "would incorrectly signal to consumers that the government believes there is something to worry about – or, at least, that there is something fundamentally different about such products."⁶⁴ Over-labeling a product is akin to crying wolf – the importance of real warnings will be lost. FDA has been trying to keep this from happening by keeping immaterial information off the label.

Precautionary labeling is not necessary, as the market forces will provide the interested and concerned consumer with those products that will tout themselves as not containing genetically altered materials. The new organic label picks up where the lack of a "genetically engineered" label leaves off. Under the USDA's National Organic Standards, "organic" product cannot be labeled as such if it contains a genetically engineered organism. Consumers who do not want to purchase a genetically engineered product will be in the same position as a consumer who does not want to purchase food that has been grown using pesticides. The market will react to consumer desire to purchase "pure" foods, thus rendering moot the need for mandatory genetically engineered labeling. Some major grocery chains, such as Whole Foods Market, have pledged to provide their consumers with information about which of their products do not contain genetically modified organisms, when that information is available, in an attempt to keep their shelves free of genetically engineered products. This trend is sure to continue as long as the market propels it.

Labeling something where there is currently no data demonstrating that these products are materially different might only produce an unfounded aversion and suspicion of these

products in the consumer's mind. The increased cost associated with "organic" products may be prohibitive to low-income individuals, thus leaving this group feeling that they are the guinea pigs for these products while higher-income individuals can avoid these products. In addition the potential bias against these products in the marketplace is that consumer reluctance to purchase the products could stymie technological advancements that could provide beneficial products to the world agricultural community.

The FDA, in contrast to the EU and international community, has reached the correct balance of interests by adopting a voluntary labeling regime for foods that do not contain GMOs. This allows will allow consumers who are concerned with GMOs to avoid them in the marketplace. At the same time it avoids the implication, that comes with warning labels, that there is something inherently dangerous with GMOs, a position that is not validated by current scientific data. The FDA voluntary labeling policy can be viewed as an example of the precautionary principle in action both in terms of consumer health and economic viability of the emerging GMO industry.

GMO Footnotes

- ⁶³ Sally R. Kirsch is a third year J.D. candidate at the American University's Washington College of Law and the Article Editor for *International & Comparative Environmental Law*. <sallyr.kirsch@stlouis.com>
- ⁶⁴ See <http://www.consumerwatch.org/>
- ⁶⁵ Declaration on Environment and Development, June 13, 1992, U.N. Doc. ACONF. 151/26 Vol. II, 31 I.L.M. 874 (1992).
- ⁶⁶ Convention on Biological Diversity, June 5, 1992, 31 I.L.M. 818 (1992) entered into force December 29, 1993.
- ⁶⁷ United Nations Framework Convention on Climate Change, May 29, 1992, 31 I.L.M. 849 (1992) entered into force March 21, 1994.
- ⁶⁸ Hunter, Salzman, and Ziaee, *International Environmental Law and Policy* 361 (1998).
- ⁶⁹ Daniel Bodansky, *Scientific Uncertainty and the Precautionary Principle*, 21 Env't 11 (1991).
- ⁷⁰ Novel Food Regulation (EC) 258/97 Regulation (EC) 1593/98
- ⁷¹ Commission Regulation 2533/00
- ⁷² Statement by David Byrne, EU Commissioner for Health and Consumer Protection, http://www.europa.eu.int/comm/health_consumer/library/press/pps_502_en.htm
- ⁷³ Codex Alimentarius Commission, ACONF.01/22
- ⁷⁴ Should the WTO Negotiate New Trade Rules on Genetically Modified Organisms? Center for International Environmental Law (1999) <http://www.consumerwatch.org/gmo/1999.htm>
- ⁷⁵ Biosafety Protocol to the Convention on Biological Diversity, January 20th, 2000
- ⁷⁶ Peter Barton Hutt & Rosalyn A. Munn, *FOOD AND DRUG LAW CASES AND MATERIALS*, 97d (Foundation Press 2nd ed. 1991)
- ⁷⁷ 51 Fed. Reg. 23302 (June 25, 1986).
- ⁷⁸ Mary Jane Argeno, *Genetically Engineered Plant Pesticides: Recent Developments in the EPA's Regulation of Biotechnology*, 7 U. Fla. J.L. & Pub. Pol'y 257, 260 (1996).
- ⁷⁹ Id. at 270.
- ⁸⁰ FDA Government Web Site, www.fda.gov/oc/pam/morechoices/smallbusiness/blutool.htm
- ⁸¹ Peter Barton Hutt & Rosalyn A. Munn, *FOOD AND DRUG LAW CASES AND MATERIALS*, 36-37 (Foundation Press 2nd ed. 1991).
- ⁸² Frederick H. Degroot, *The Food Label and the Right to Know*, 52 Food & Drug L.J. at 50-51.
- ⁸³ 21 U.S.C. §§301, 343(n); (g); (i); FDCA §§1, 402(n), (g), (i)
- ⁸⁴ FDCA §201(h)
- ⁸⁵ www.fda.gov/oc/pam/morechoices/smallbusiness/blutool.htm (Page 24)
- ⁸⁶ Section 409 contains what is commonly known as the "Delaney Clause" and was enacted as part of the Food Additive Amendment. The Delaney Clause prohibits "FDA from approving as 'safe' any food additive found to induce cancer in man or in animals when administered by ingestion or other appropriate test." Peter Barton Hutt & Rosalyn A. Munn, *FOOD AND DRUG LAW CASES AND MATERIALS* at 295 (Foundation Press 2nd ed. 1991).
- ⁸⁷ Insecticides, pesticides, color additives, and new animal drugs are all required to pass similar safety standards listed in other sections of the Act, Regulations of Laws and Regulations, U.S. FDA, www.fda.gov/oc/pam/morechoices/smallbusiness/blutool.htm
- ⁸⁸ 57 Fed. Reg. 22954, 22980 (May 29, 1992).
- ⁸⁹ 21 CFR §100.100(a)(3)(ii) (1992).
- ⁹⁰ 57 Fed. Reg. 22954 (May 29, 1992).
- ⁹¹ Id. at 22984.
- ⁹² Id. at 22988.
- ⁹³ Id.
- ⁹⁴ Id. at 22990.
- ⁹⁵ Id. at 22990.
- ⁹⁶ 57 Fed. Reg. 22954, 22992 (May 29, 1992).
- ⁹⁷ Id. at 22990.
- ⁹⁸ FDA Backgrounds: Biotechnology of Food, May 18, 1994, <http://vm.cfsan.fda.gov/~ltd/biotecn.html>
- ⁹⁹ 57 Fed. Reg. 22984, 22991 (May 29, 1992).
- ¹⁰⁰ 57 Fed. Reg. 22984, 22991 (May 29, 1992). The "common or usual name" is listed in FDCA § 403(b). The FDA provides an example of a situation in which a "new safety or usage claim" would apply – if a protein was added to a tomato, the tomato might cause an allergic reaction in consumers with a sensitivity to certain and therefore appropriate labeling would be needed.
- ¹⁰¹ FDA Website, <http://vm.cfsan.fda.gov/~ltd/biotecn.html>
- ¹⁰² Id.
- ¹⁰³ FDA Website, <http://www.fda.gov/oc/biotecn/default.htm>
- ¹⁰⁴ Id.
- ¹⁰⁵ Community Nutrition Institute v. Young, 819 F.2d 943 (DC Cir. 1987).
- ¹⁰⁶ David Abulafia, *Article, Pushing RBST: How the law and the political process were used to sell Recombinant Bovine Somatotrophin to America*, 15 Pace Envtl. L. Rev. 603 (1998).
- ¹⁰⁷ Id. at 607.
- ¹⁰⁸ Id.
- ¹⁰⁹ Id.
- ¹¹⁰ See *International Dairy Foods Ass'n*, 92 F.2d at 68 (quoting Vt. Stat. Ann. Tit. 6, § 2754(c)).
- ¹¹¹ Id. at 74.
- ¹¹² *Central Hudson Gas & Elec. Corp. v. Public Serv. Commission*, 447 U.S. 557, 566, 100 S.Ct. 2343 2351 (1980).
- ¹¹³ *International Dairy Foods Ass'n* 66 F.3d at 72 (citing *Central Hudson*).
- ¹¹⁴ *Edenfield v. Fane*, 507 U.S. 761, 770-71 (1993).
- ¹¹⁵ *International Dairy Foods Ass'n*, 92 F.3d at 74.
- ¹¹⁶ Id.
- ¹¹⁷ H.R. 3377 106th Cong. (1999)
- ¹¹⁸ S. 2060 106th Cong. (2000)
- ¹¹⁹ *Genetically Engineered Food Fight To Know Act*, H.R. 3377 (November 16, 1999)
- ¹²⁰ H.R. 3377 106th Cong. § 2 (1)
- ¹²¹ H.R. 3377 §3(a)(1)(A)(B) applies to food, meat, and poultry. However, meat and poultry are found in § 7A and 8A respectively.
- ¹²² The label for sutiles reads "Contains sutiles" and does not make any statement as to whether this is a positive or a negative addition to the food.
- ¹²³ White House, Clinton Administration Agencies Announce Food and Agricultural Biotechnology Initiatives: Strengthening Science-Based Regulation and Consumer Access to Available at <http://vm.cfsan.fda.gov/~ltd/biotecn.html>
- ¹²⁴ Henry I. Miller & Peter VanDoren, *Food Risks and Labeling Controversies*, 23 Regulation 1, 36 (2000).
- ¹²⁵ Id. at 35.

DURWOOD ZAEKE is an Adjunct Professor, Director of the Joint Research Program on International and Comparative Environmental Law at WCL, and the President and Founder of the Center for International Environmental Law (CIEL). He recently taught for a semester at Yale Law School. In addition, Professor Zaelke was appointed Director of the Secretariat for the International Network for Compliance and Enforcement, a project jointly funded by the Dutch and U.S. environmental protection agencies. He was also elected to founding board of the National Association of Environmental Law Societies. Professor Zaelke is currently working on the second edition of his best selling text book *International Environmental Law* (David Hunter, James Salzman, Durwood Zaelke)

JAMES SALZMAN, an Associate Professor of Law at the Washington College of Law (WCL), has recently guest lectured on various issues of both U.S. and international environmental law at Harvard, the University of Houston, Stanford, the University of Indiana, the University of Lund in Sweden, and Georgetown. In addition he gave a presentation before the National Research Council. He recently published "Earth in the Judicial Balance," in *The Nation*; "Labor Rights, Globalization and Institutions: The Role and Influence of the Organization for Economic Cooperation and Development," in the *Michigan Journal of International Law*; and "Currencies and the Commodification of Environmental Law," in the *Stanford Law Review*.

PERRY WALLACE, a Professor of Law at WCL, is currently directing an environmental justice project for the Marshall Heights Community Development Organization's Community Health and Wellness Initiative. The Marshall Heights project will assist the organization in establishing a community-based system for (1) identifying and monitoring relevant environmental developments, (2) participating in environmental decision making, and (3) taking action necessary to combat pollution-based threats to the health and wellness of its citizens.

PAUL HAGEN, an Adjunct Professor at WCL and Principle at Beveridge & Diamond, co-chaired the two day American Law Institute/American Bar Association course on International Environmental Law in Washington DC. In addition he presented on the topic of international regulation of biotechnology.

MICHAEL P. WALLS, an Adjunct Professor at WCL and Senior Counsel for the American Chemistry Council, gave a presentation on Hazardous Chemicals and Waste: Prior Informed Consent (PIC), Persistent Organized Pollutants (POPs), the Montreal Protocol, Global Harmonized System for Classification and Labeling (GHS), and the Basel Convention at the ALI/ABA Course on International Environmental Law in Washington, DC.

ERIC DANNENMAIER, an Adjunct Associate Lecture at WCL recently co-authored "Achieving Meaningful Compliance with Global Climate Change Commitments," for the Pew Center on Global Climate Change. In addition he recently published "Meeting Sustainable Development Commitments in the Americas -Progress to Date, Leadership Council for Inter-American Summitry Policy Paper," for the North-South Center Press and "Regional Security and Environmental Governance in the Americas," for the Canadian Foundation for Latin America Policy Paper (FOCAL).

BILL COHEN is an Adjunct Professor and consultant at WCL. He is developing new courses in both Biotechnology and Comparative Environmental Impact Assessment. Professor Cohen previously was Chief of the General Litigation Section Environment of the Natural Resource Division at the Department of Justice from 1986 to 2000. From 1971 to 1986 he served as a Trial Attorney, and later as Assistant Chief, for the Section. He was an Associate at Debovoise and Liberman from 1970 to 1971 and an Attorney in the Appellate Section of the ENR Division of DoJ from 1965 to 1970. Professor Cohen has lectured at George Washington, Cornell, Vermont Law School, Duke and the Graduate School of the Department of Agriculture. He is a regular instructor at the American Law Institute-American Bar Association course on

Environmental Law. In addition he is the recipient of numerous awards including the Natural Resources Council's National Environmental Quality Award and the Attorney General's Distinguished Service Award.

DON GOLDBERG, an Adjunct Professor at WCL and a Senior Attorney at the Center for International Environmental Law (CIEL), participated in the Climate negotiations in Lyon, France and the Sixth Conference of the Parties to the United Nations Framework Convention on Climate Change at The Hague. In addition, Professor Goldberg presented at the ABA/WCL Post-COP6 Panel in Washington, DC.

KEN MARKOWITZ, Adjunct Professor at WCL founded EarthPace, LLC (www.earthpace.com) and serves as its President. EarthPace designs Web communication systems

and teaching materials in order to improve environmental decision making and advance education. In addition, Professor Markowitz is a Senior Attorney at the Center for International Environmental Law (CIEL) where he is directing a NASA funded project to develop Environmental Legal Information Systems (ELIS) aimed at building better global environmental management by integrating earth system science and technology with environmental laws and policies. The University of Maryland Baltimore County (UMBC) is a partner in this project along with CIEL, the US Library of Congress, NASA Goddard Space Flight Center, and the Universities Space Research Association. For more information about ELIS visit <http://athena.csee.umbc.edu:9080/ELIS/index.jsp>.

Environmental Events @ WCL

January

26 View from Space: Digital Earth Applications in Environmental Law and Management, 8:00 to 5:00, Room 603

February

8 Environmental Risk Management in Business Transactions, 5-9 Room 603

March

6 Comparative Environmental Impact Assessment, 5-9, Room 603

21 Environmental Film Festival: Goldman Prizewinner, Ordinary People extraordinary commitments, 6-9, Room 603

31 International Wildlife Law Conference, 8:00 a.m. to 6:00 p.m., Room 602

April

18 Earth Day Panel: The Impact of Fossil Fuel Exploration on Human Rights & The Environment, 5-9 Room 603

General Reference Links

United Nations Environment Program <http://www.unep.ch>

United Nations Commission on Sustainable Development
<http://www.org/esa/sustdev>

Global Environment Facility <http://www.gefweb.org>

International Standards Organization's ISO 14000
<http://www.iso14000.com>

OECD's Environment Directorate <http://www.oecd.org/env>

WTO's Environment and Trade Operation
<http://www.wto.org/wto/environ/environm.htm>

United Nations Framework Convention on Climate Change
<http://www.unfccc.de/index.html>

United Nations Convention of Biological Diversity
<http://www.biodiv.org>

WCL Environmental Law Program
<http://www.wcl.american.edu/environ>

Center for International Environmental Law
<http://www.ciel.org>

INTERNATIONAL CALENDAR

January

- 17-20: Eight Session of Working Group I of the Intergovernmental Panel on Climate Change (IPCC), Shanghai, China. (www.ipcc.ch)
 29-31: Joint FAO/WHO Expert Consultation on Evaluating Food Safety: Science and Ethics, Rome, Italy. (Contact Mr. Boutrif at 39 6 57052753)

February

- 1-28: Technical Expert Group on Marine and Coastal Protected Areas in Leigh, New Zealand. (Contact Mr. Hamdallah Zedan at secretariat@biodiv.org)
 5-9: 21st Session of the UNEP Governing Council in Nairobi, Kenya. (Contact Mr. B.A. Miller at millerb@unep.org)
 12: Organizational Session of the United Nations Forum on Forests in New York, United States. Contact Ms. Tiina Vähänen at vahanen@un.org.
 19 - 23: International Conference of the Invasive Species Specialist Group of IUCN in Auckland, New Zealand. Contact scc@hq.iucn.org.
 26 - March 2: Committee on Fisheries (COFI) in Rome Italy. More information available at <http://www.fao.org>.
 26 - March 2: Ad Hoc Open-Ended Intergovernmental Group of Experts on Energy and Sustainable Development in New York. Information available at <http://www.un.org/esa/sustdev>.

March

- 5-16: Ad Hoc Inter-Sessional Working Groups of the UN Commission on Sustainable Development in New York. Contact Mr. Zehra Aydin at aydin@un.org
 12-16: Sixth Meeting of the Scientific Technical and Technological Advice (SBSTTA-6) in Montreal, Canada. Contact Mr. Hamdallah Zedan at secretariat@biodiv.org.
 12-16: FAO Committee on Forestry (COFO) in Rome, Italy. More information available at <http://www.fao.org>.
 14: Third International Marine Salvage Conference, London, UK. Contact associationsservices1@compuserve.com.
 19-23: Interim Chemical Review Committee for the Rotterdam Convention on the Application of the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade in Rome, Italy. Contact Mr. Wyrwal at 39 6 57052753.
 26-30: FAO Committee on Agriculture (COAG) - 16th Session in Rome, Italy. Contact Mr. Kueneman at 39 06 57052287.

April

- 2-6: Codex Committee on Pesticide Residues at The Hague, Netherlands. Contact Mr. Randell at 39 06 57052753.
 2-4: OECD Education Ministers Meetings in Paris, France. Contact news.contact@oecd.org.
 3-5: Oceanology International Americas Exhibition and Conference 2001, Miami, FL. Contact oiamericas@spearhead.co.uk. Information available at www.oiamericas.com.
 5-6: International Sustainable Development Research Conference 2001, Manchester, UK. Contact elaine@erpenvironment.org. Information available at www.erpenvironment.org.
 16-27: Ninth Session of the Commission on Sustainable Development, New York. Contact Mr. Zehra Aydin at aydin@un.org.
 23-27: FAO Commission on Genetic Resources for Food and Agriculture in Rome, Italy. Information available at <http://www.fao.org>.
 30 - May 4: FAO Committee on Food and Labelling (29th Session) in Ottawa, Canada. Information available at <http://www.fao.org>.

May

- 4-8: 45th Meeting of the CITES Standing Committee in Geneva, Switzerland. Contact cites@unep.ch
 16-18: OECD Environment Ministers Meeting and Annual OECD Council Meeting at Ministerial Level in Paris, France. Contact news.contact@oecd.org
 21-24: International Conference on Biodiversity and Society at Columbia University in New York, United States. Contact Ms. Christine Alfsen-Norodom Calfsenorodom@aol.com
 21-25: Medium Term Meeting Consultative Group on International Agricultural Research in Durban, South Africa. Contact Ms. Frauna Hall at cgiaar@worldbank.org.
 21 - June 1: 14th Session of the Subsidiary Bodies (SBI and SBSTA) UN Framework Convention on Climate Change in Bonn, Germany. Contact Ms. Isabelle Colineau at icolineau@unfccc.de.
 22-23: Diplomatic Conference on a Legally Binding Instrument for Implementing International Action on Certain Persistent Organic Pollutants (DIPCOM) in Stockholm, Sweden. Contact Mr. Jim Willis at jwillis@unep.ch.

Calendar Links

United Nations Environment Program Calendar: <http://www.unep.org/Calendars>

Sustainable Development Calendar: <http://www.un.org/esa/sustdev/index.html>

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