Environmental Law and War
By Nada Y. Al-Duaij, S.J.D. Candidate

Armed conflict is an endless subject, and continues to occur between nations, causing significant humanitarian and environmental damage during, after, or in preparation for such conflicts. All too often, the damage to the environment has long-term effects.

There is renewed evidence that warfare involves con-

An Era of Hazard: Persistent Organic Pollutants
By Marco A. Olsen, S.J.D. Candidate

In May 2001, representatives from over 122 countries, NGOs representing citizens and the chemical industry, met in Stockholm to adopt and open for signature The Stockholm Convention on Persistent Organic Pollutants. The Convention is a legally binding treaty designed to protect human health and the environment from adverse effects of toxic POPs, Page 16

Korean Environmental Law: An Eastern View
By Byung-Chun So, S.J.D. Candidate

This thesis addresses legal solutions for a cleaner environment. First, it reviews the current definition of environmental rights from an ethical perspective. Then, it questions whether the existing framework of legal rights adequately explains the legal relationship between man and nature, recommending the Western legal rights viewpoint.

Environmental governance seeks to give a voice to all sectors of society in decisions that can affect them. Including civil society in decision-making at the local, national, regional, and global levels, benefits governments, people, and businesses. This article briefly reviews how a global framework may be developed from a series of regional environmental governance initiatives that advance public access to information, participation, and justice in environmental matters. Access to information about the status of the environment (including public health), factors that could affect it, and the relevant laws and institutions allows the public to be informed, to decide whether there is a need to act, and if so what form of action would be best. Public participation in decision-

Global Framework, Page 20

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Zyg Plater, Ann Powers, Gerald Torres, Joe Sax, and Gus Speth (l. to r.) were only half the all-star line-up at the 2002 Pace Garrison Lecture and Roundtable, see page 3.
Dyson Lecturer Farber Speaks on Environmental Law

Chalk up another prestigious lecturer in environmental law during this school year, as Daniel A. Farber, of the University of Minnesota Law School chose to focus the 2002 Dyson Lecture on an environmental law topic.

The lecturer, known to many of us as the Farber in Findlay and Farber (authors of a renowned environmental law casebook), delivered a lecture entitled, “Where the Rubber Meets the Road: Rethinking Environmental Law After American Trucking.” The lecture took place on April 8, 2002.

What else would he speak about at Pace?

Fourth Brazil Seminar Upcoming

During the 4th International Forum in Environmental Law, in Joao Pessoa, Brazil, Pace Law Professors and Brazilian Experts will discuss enforcement of American and Brazilian Environmental Laws.

At the same time, we’ll learn about the Brazilian work on waters, specifically about the work of the recently created Water National Agency. There will be several contests: a drawing competition for children on environmental themes, will result in the selection of 12 works to produce a calendar; an environmental writing contest; an essay contest for Law students; and a competition for artists.

Professor Robert J. Goldstein will teach a course for Pace Law students in conjunction with the seminar entitled, Comparative Environmental Law: Brazil’s Atlantic Forest Region. This course will afford students the unique opportunity to experience comparative environmental law by focusing on the legal systems that are involved in protecting resources of glo-
Student Perspective on the 2002 Garrison Lecture: “Environmental Law in the Political Ecosysterm”

By Loni S. Gardner, ’03

By 1980, the snail darter, a tiny endangered fish found in the Tennessee River, lost its home after the Tennessee Valley Authority (TVA) intentionally destroyed its habitat in order to build a non-electric generating dam in Tellico, Tennessee. The Garrison Lecturer, Zygmunt J.B. Plater, currently a law professor at Boston College, was a principal litigator in the Snail Darter Case. His lecture chronicled his journey through the court system where he triumphed at the Supreme Court level by gaining an injunction against the TVA in 1978, only to ultimately be overturned by the legislature in 1980 by the TVA Appropriations Act.

Plater began his tale with a historical explanation of the TVA, which was created during the New Deal era to establish electric generating dams for the Southeast, as well as to create jobs. The Tennessee River, with its beginnings in the Great Smoky Mountains National Park was ideal for dam construction due to the mountainous region, which lends itself to the capture of hydro-power. In contrast, the Tellico Dam site, which lies far to the West of the mountains, was flat farmland and not capable of efficiently generating power. The farmland was some of the richest in the world, as an archeological study of the area has determined it has been used for that purpose for 10,000 years.

However, the Chair of the TVA, Red Wagner, had his own political agenda. He wanted to use the dam construction to boost morale at the TVA as well as, after takings, sell the surrounding farmland to the Boeing Corporation. Ultimately, the Boeing Corporation planned to construct an exclusive residential community called Timberlake Model City and the dam would provide a new lake for boating and recreation. However, the plan, which certainly did not benefit the public by producing electricity, never made economic sense either. On January 23, 1979, Charles Schultze, Chairman of the Council of Economic Advisers and member of the Endangered Species Committee, declared that “...if one just takes the cost of finishing [the project, which was at the time 95% complete] against the [total project] benefits... it doesn’t pay... which says something about the original design.”

Having grown up in the region (and feeling a little depressed about the tragic epic) I felt compelled to ask Mr. Plater what, if anything, he could have changed to create a better outcome. He lamented that he still loses sleep over this question, but said changing the name of the parties from (Hill) to Coalition of Tellico Farmers would have made a huge political difference in the eyes of the unofficial branch of the government, the media. Plater identified six branches of government although three are clearly unofficial. In addition to the judiciary, legislature, and executive/administrative branch, Plater has included the media, the common law, and the market place as other “branches” that he had to contend with throughout the case. By forming an ally with the media, perhaps the sentiment for the plight of the farmers and the destruction of the endangered snail darter might have influenced the other branches to his favor.

In case you were wondering, the Timberlake Model City was never built, as the project never made any economic sense. Boeing never constructed the City, although the “new” lakefront was eventually developed. The farmers are long gone and while one can no longer enjoy some of the world’s best fly fishing, which is an activity that requires flowing water, the lake has been developed and features many large lake homes and private docks where at least a few gather each summer for boating and recreation.

While I was only a child when the snail darter lost its habitat and the farmers of the Tellico were torn from their land, I feel responsible for keeping a watchful eye on future destructive activities that may threaten the Tennessee Valley. Ultimately, I feel this was Professor Plater’s theme throughout his lecture. It is up to each individual to have a say in what happens in their backyard and to learn from the failures and successes of others.

Editors Note:

The Garrison Lecture and Roundtable were videotaped, and the entire presentation is being prepared for distribution on a CD-ROM. The Lecture and Roundtable will also be the subject of a special edition of the Pace Environmental Law Review, edited by Robert J. Goldstein, and will contain the article on which Professor Plater based his lecture. This edition will also contain the collected Garrison Lectures with some insightful addenda by their original authors, an introduction by Professor Goldstein, and an article summarizing the message of the proceedings, by Professor Jeff Miller.
flicts not only between the combatants, but also between man and nature. The ability of modern warfare to devastate the natural environment has become ever more obvious: animal species become extinct, forests become deserts, fertile farmland becomes a minefield, water becomes contaminated and native vegetation disappears.

Attacks on the environment become more savage as technology develops. Environmental destruction has become an inevitable result of modern warfare and military tactics. The nuclear, chemical, and biological weapons that emerged during the late twentieth century present threats to life itself; but short of that apocalypse, modern weapons can cause or hasten a host of environmental disasters, such as deforestation and erosion, global warming, desertification, or holes in the ozone layer. The devastating effects of military weapons on the environment is reflected throughout the history of the twentieth century, in World War I, World War II, the Korean and Vietnam wars, the Cambodian civil war, Gulf wars I and II, the Afghan civil war, and the Kosovo conflict.

During Gulf War II, which was the most toxic war in history, Saddam Hussein threatened to pollute the Gulf with oil, and burn oil wells if other nations attempted to liberate Kuwait. He carried out his threats after the beginning of the United Nations coalition air raids. Iraq pumped crude oil into the Gulf, and set fire to Kuwait oil fields. Iraqi troops destroyed eighty to eighty-five percent of Kuwait’s 950 oil wells. The daily release of heat from these wells was estimated to be about eighty-six billion watts, equivalent to that of a five hundred-acre forest fire. The fires burned about 4,600,000 barrels of oil daily. Smoke spread as far as 800 miles south of Kuwait. The Iraqi military created what has been called “the worst man-made environmental disaster in history.” The Kuwaiti government estimated the value of the lost oil at $12 billion. Some reports stated that at least 30,000 marine birds perished as a result of exposure to oil, and about 50% of the coral reefs on the eastern coast of Saudi Arabia was damaged or destroyed. Some of the annual flora in the region failed to set seeds because of the exposure to soot and oil mist.

Moreover, massive environmental destruction was caused not only by deliberate military tactics, but by other activities related to war efforts. The United States military produced approximately 6 million used plastic bags weekly, from their “Meals Ready to Eat.” Soft drink cans and junk food cardboard boxes were also disposed of in the desert. About 40,000 km$^2$ areas of Kuwait, northeastern Saudi Arabia, and Southern Iraq were littered with solid waste from Gulf War II. Solid wastes were generated mainly from destroyed military hardware (over 5000 Iraqi tanks and armored vehicles, over one million mines in Kuwait), residue of explosives and ammunitions (over 80,000 tons of bombs were dropped and about 120,000 tons of ammunition used), and sanitary residues (over 4 million tons of wastes from humans). Solid wastes generated during Gulf War I still pose a serious threat to land resources in the war zone.

Depleted Uranium (DU) was used in weapon ammunition for the first time by the coalition during Gulf War II in 1991. It is estimated that the United States Army fired about 14,000 high-caliber shells containing DU during the war. According to the British Atomic Energy Authority, about forty tons of this type of projectile are scattered near the Iraqi-Kuwaiti borders, and no more than ten percent of these ammunitions have yet been detected. A US military lieutenant colonel was quoted in an official report as saying: “[t]he explosions spread DU penetrators […] throughout the north compound. The fires produced billowing black and white clouds of smoke that … drifted … towards Kuwait City … I personally handled over two dozen rods or pieces of rods [of DU]. Most of them had a black sooty or powdery coating over them… there would be as many as 50 soldiers ‘on line’ sweeping down a cleared area of very small debris, sand and dust […]” DU is used to strengthen weapons because it is sixty-five percent denser than lead. It is flammable and can penetrate even “steel- armored tanks.” However, DU is a real threat to human health and the environment. For example, since uranium is a heavy metal it can be toxic if it enters the body and lodges in the kidney. Studies have shown that contact with DU projectiles leads to leukemia, anemia, birth defects, and other serious maladies. One British company refused a contractual project to remove poisonous Uranium from the Kuwaiti region because of the fear that its staff would be exposed to great risk. Land resources of the war region were adversely affected. However, because Kuwait, Saudi Arabia, and Iraq lack the technology and expertise to fully determine the environmental impact of the war, and because it is difficult, if not impossible, to accurately assess the harm to the natural environment, damage to the land resources may not be repaired for several decades, if indeed at all.

Similarly, in the Kosovo conflict, the North Atlantic Treaty Organization (NATO) also used depleted Uranium as a component in ammunition. NATO said that the United States A-10 aircraft fired 31,000 rounds of ammunition containing DU during the 1999 air strikes against Serbia, creating a danger not only to the people, but also to the environment of the entire Balkans.

“A-10s were the anti-tank weapon of choice in the 1991 Gulf War, because they carry a GAU-8/A Avenger 30...
millimeter seven-barrel cannon capable of firing 4,200 rounds of ammunition per minute. John Catrinotto, a spokesperson for the Deploited Uranium Education Project of the International Action Center, said “DU is used in alloy form in shells to enable them to] penetrate targets. As the shell hits its target, it burns and releases Uranium-oxide into the air. The poisonous and radioactive Uranium is most dangerous when inhaled, [because it will continue to] release radiation throughout the life of the [exposed] person.” Moreover, inhaling Uranium 238 can cause lung cancer, or lymphoma. In 1999, six Italian soldiers died after serving in Kosovo and Bosnia. As a consequence, Italian Prime Minister Giuliano Amato declared that his government will call for NATO to investigate “the Balkans syndrome” and assume responsibility for its actions. Moreover, in France, four soldiers who served in the Balkans are being treated for leukemia. Paul Lannoye, the leader of the parliament’s Green Group, said: “EU governments and NATO must be accountable...It is not acceptable to say that we should wait and establish a link between the weapons and illnesses before action is taken.” Consequently, the European parliamentarians called for “a moratorium on the use of DU weapons until the health risks are clearer.”

Even without armed conflict, military bases often generate considerable amounts of hazardous wastes, such as explosives, solvents, acids, and spent fuel that can contaminate the surrounding soil, water, and air. For example, at several bases in Germany, underground sources of drinking water have been contaminated with “spilled jet fuel and trichloroethylene from U.S. military operations.”

In the Philippines, the departure of the American military exposed the extent of hazardous waste contamination at the U.S. bases there. The U.S. General Accounting Office reported in January 1992 that untreated chemical and heavy metal wastes had been discharged into the air, the ground, and into Subic Bay from Subic Bay Naval and Clark Air Force Bases. A May 1993 report found a potential risk of pollution at Subic Bay. Similarly, local citizens complain that U.S. military operations “monopolize fertile farmlands in Guam, threaten bird sanctuaries in Japan, and pollute the air with jet noise in Germany.”

Serious environmental and health effects can result from non-hostile military operations, even by accident. Three American soldiers died and fifty were wounded in an accidental explosion near the U.S. military camp at Doha, Kuwait on July 11, 1991, when some of the ammunition detonated. A statement from the Joint Information Bureau in Dharan, Saudi Arabia reported that “we know it was not due to hostile action or sabotage.” The explosion resulted in the release of radioactive and toxic dust which might cause cancer, or respiratory, kidney and skin disorders. Further, Dr. Charles Phelps, the provost at the University of Rochester and a member of an Institute of Medicine Committee, reported that Uranium-238 was leaching into the soldiers’ kidneys, and “they had very high levels of Uranium salts in their urine.”

Some political and military leaders have already recognized the threat to the environment from war and other military operations. For example, Colonel Ken Cornelius, an Air Force officer on the staff of the Assistant Secretary of Defense for the Environment, asserted: “If we’re going to break things and kill people, and that’s what war’s about, if push comes to shove, that’s what we’re there to do. I can’t think of too much that’s more damaging to the environment than the war.” Kofi Annan, Secretary General of the United Nations, stated that “peace is understood not just as the absence of conflict, but as a phenomenon encompassing economic development, social justice, environmental protection, democratization, disarmament, and respect for human rights.” The countries of the world must recognize that peace has many pillars in addition to the mere prevention of conflicts. One of these pillars is environmental protection, so that people can live without the threat of contaminated water, polluted air, or toxin-laden soil.

There is often no way to measure environmental loss in dollar amounts, and the loss is often irreversible. Even though experts have found methods to calculate the monetary costs of environmental destruction, money alone cannot return the original animal or plant life, clean water, or remove all the traces of pollutants. In ecological terms, reparations are inadequate after armed conflict has already caused that kind of damage. Thus, the focus of world leaders must be on preventing environmental destruction before, or even during, armed conflict.

My interest in the subject of environmental law and armed conflict is based on three facts: First, that the environment can be targeted readily during armed conflict without being able to shelter or escape. Second, that the more developed modern technology becomes, the greater the environmental threats grow. And finally, I strongly believe that, under the existing law of armed conflict, any harm to our natural environment will indeed affect human health and welfare. Therefore, if we cannot live in harmony with our environment and secure nature and natural resources our lives will be miserable and that will extend to the future generations as well.

This thesis examines the nature of armed conflict, to include civil war and its related problems. It examines the

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impact of armed conflict on civilian population, and classifies the environmental impacts into three categories: environmental damage of preparing for armed conflict, during and after armed conflict.

This thesis also examines most of the applicable sources of international law, which shows that many efforts have been made to protect humans from the severe effects of armed conflict. However, the environment is much more vulnerable, and humans cannot be separated from the environment. Nevertheless, international environmental law is still not providing sufficient environmental protection during armed conflicts. Therefore, more efforts should be made to protect the environment from military operations in order to provide a safe and healthy environment for the people.

Moreover, by addressing the environmental protection in the international humanitarian law (IHL), it appears that IHL is not capable of providing for complete environmental protection during armed conflict. Therefore, the International Committee of the Red Cross (ICRC) should play a significant role in securing nature and natural resources along with humanitarian protection.

The relevant environmental law rules were examined in the international, national and comparative levels. The environmental law rules are considered to be the most capable rules to protect the natural environment. However, these rules are not codified to protect the environment during armed conflict. This trend is supported by many international law jurists. Nevertheless, to provide realistic and comprehensive environmental protection, the environmental law rules should not be suspended during armed conflicts since the environment is believed to be under a serious threat.

Furthermore, this thesis provides criteria for enviro-humanitarian rules (EHR) that deal with the environmental protection from one part and humanitarian protection from another part. These criteria are: 1) rules formulated by a competent State organ, often under the supervision of military authorities; 2) rules applicable in times of armed conflicts; 3) rules included in bilateral or multilateral conventions that seek to regulate or eliminate the use of certain weapons or tactics of war; 4) generally, only State parties to the EHR conventions can investigate compliance with these rules; 5) unlike International Humanitarian Law, they do not vest the ICRC with any major role; and 6) parties to conventions of the enviro-humanitarian rules have the right to withdraw at any time.

The adoption of these rules, International Humanitarian Law, Environmental Law and Enviro-Humanitarian Rules, would create a system of responsibility for environmental damage caused by war, both nationally and internationally, and help to avoid such damage in the first place. The responsibility for warfare environmental damage examines the system of responsibility for environmental damage resulting from military activities in peacetime and in times of armed conflicts under two levels, the international and the internal systems. The domestic jurisdiction system has the priority over the international system, to examine cases of environmental destruction and to maintain justice. Nevertheless, internal legal systems vary from State to another, where some national systems may provide shelter for criminals and prevent justice from reaching them. However, the international justice system supports the national justice systems, and when the national system fails to create a fair justice, the international system functions to fill the gap of the domestic justice.

Furthermore, States’ sovereignty should not present an obstacle in maintaining justice since some political leaders or heads of some States can hide under their States’ sovereignty and escape justice when they committed war crimes or violated international law rules.

Finally, some thoughts have been examined to avoid any unnecessary environmental damage during armed conflict. These thoughts were translated into recommendations addressed to the international community, recommendations addressed to national societies and recommendations addressed to non-governmental organizations. For example, one of the recommendations addressed to the international community urges the creation of an international fund to rehabilitate warfare environmental damage. Another recommendation calls for the improvement of the international environmental dispute resolutions for armed conflict. And one of the recommendations that addressed to the national societies calls for the modification of the status of civil ministries of the environment and creation of a new service within these ministries to deal with environmental emergency responses and cleanup. However, one of the recommendations addressed to non-governmental organizations calls for the introduction of environmental protection as a goal of the ICRC. The adoption of these recommendations will, I hope, assure that the environment will be secured from damage caused by any future armed conflict.

In sum, as Principle 26 of the Rio Declaration on Environment and De-
development provides “States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the United Nations.” The peaceful settlement of disputes had been emphasized by the Rio Declaration because it recognized that recourse to armed conflict as a method for settling differences will undermine efforts to achieve sustainable development. The Rio Declaration combines the principle of peaceful settlement of disputes with other environmental values, by recognizing that nations should not only seek peaceful settlements of their differences, but should also protect nature and natural resources as well.

Footnotes
6 Caggiano, supra note 3 at 480-481.
10 Id., at 183.
15 Id., at A6.
16 Id., at A1, A6.
17 Guenther, supra note 11 at 167.
18 Id., at 168.
20 A statement by the International Action Center, a group that opposes the use of (DU) weapons.
22 Dr. Frank von Hippel, a physicist who is a professor of public and international affairs at Princeton University said that depleted uranium is left “when the more highly radioactive uranium 235 has been removed from its more abundant atomic cousin, uranium 238 [which] is very weakly radioactive.” See Kolata, supra note 14 at A1.
23 Id., at A6.
24 Italy was the largest participant in the peace-keeping operations in Kosovo, Bosnia, and Albania in the 1990s after the U.S. See Blitz & Nicoll, supra note 19 at 2.
25 Id., at 2.
27 Id., at 2.
28 Id., at 2.
31 Id.
33 Dycus, supra note 1 at 73.
35 Id.
37 Kolata, supra note 14 at A6.
38 Lanier-Graham, supra note 8 at 12.
RENEWABLE ENERGY RESOURCES

By Richard L. Ottinger and Rebecca Williams, '02*

Renewable energy resources hold great promise for meeting the energy and development needs of countries throughout the world, but particularly for developing countries where in many areas a commitment has not been made to fossil fuel dominance. Renewables include a considerable number of proven and emerging technologies. For instance, electricity can be produced from the light of the sun via photovoltaic cells on individual buildings or for communities of buildings, or for the production of central station power in vast arrays; from the heat of the sun, again for localized tasks like providing homes with hot water or space heating, or providing central station power using fields of parabolic collectors focused on a fixed hot water source or solar ponds; from the power of the wind; from the heat below the earth through various geothermal applications; from the power of ocean tides and waves; from the temperature variations between ocean surfaces and depths; from hydropower installations; from agricultural wastes through biomethanation; and from biomass crops grown for energy use or from crop waste cellulose that can be gasified for heat, electric and transportation applications.

Use of renewable resources has grown markedly in the past decade. Many countries have significant renewable installations and programs.

The results of these efforts in India have been remarkable. India now has cumulative installations of 3.02 million family-size biogas plants; 32 million modern cook stoves, including 485 thousand solar cookers; half a million solar hot water systems; 57 megawatts of photovoltaic installations including 3,371 water pumps, 1920 kilowatts of electric power systems, 40,000 community and street lighting units, 100,000 home electric systems and 250,000 home and community lighting systems; 34.36 megawatts of biomass gasifier electric systems; 222 megawatts of bagasse cogeneration units; 1167 megawatts of wind farms; and 217 megawatts of mini and micro hydroelectric generating units.

Major increases in these installations were achieved since the creation of MNES in 1993. This increased penetration of renewables is largely attributable to the conversion of a technology-oriented subsidy program to one that focuses on fostering of markets through indirect subsidies—fiscal and financial incentives such as low interest loans, financing packages, 100% depreciation allowance for equipment during the first year, waiver of excise duties for renewable technologies and their components, exception from central and state sales taxes—to meet the end-use needs of the communities such as for lighting, communications, pumping and industrial uses. M N E S now is organized into sectoral groups of rural energy, urban/industrial energy and power generation (rather than by technology). Quality control, maintenance of systems and personnel training also have contributed to these successes. It should be noted, however, that India still gets the preponderance of its energy from coal and large hydroelectric projects, as is the case for most countries.

Other countries also have extensive renewable energy programs. Indonesia has a goal of providing 1 million solar homes and already has delivered 200,000 systems towards this goal; installment purchases contributed to this success, with the assistance of World Bank and Global Environmental Facility (GEF) loans. In Europe, Finland accesses about 30% of its electricity from renewable resources, the majority of which comes from biomass. The other Scandinavian countries and Germany also have significant renewable energy programs.

Renewable resources are very attractive for developing countries where...
some 2 billion people have no access to electricity. Ninety percent of the entire African population does not have electricity. In 1990, 66% of the rural population had no access to electricity.

In these rural areas, renewable resources often are far cheaper than traditional resources with their transmission and distribution requirements on top of heavy capital costs for generating equipment. The most advantageous and widely used renewable resources for energy in developing countries today are wind, photovoltaic, biomass and hydroelectric resources.

Wind energy for electricity production today is a mature, competitive and virtually pollution-free technology widely used in many areas of the world. Wind also still is used to some extent for pumping water. Wind electric systems have some siting problems involving their aesthetics, and some wind machines have problems with killing raptor birds that fly into the blades, though this problem has been minimized with more modern machines.

Internationally, the use of wind energy for electricity was pioneered by Denmark, which is currently generating 15% of its electricity via wind energy. The basic support mechanism for wind energy in Denmark is a partial redemption of the Danish carbon dioxide tax levied on all electricity regardless of its origin. There are 4,800 wind turbines in Denmark, more than 80% owned by wind energy co-operatives or by individual farmers. 100,000 families either own shares in wind co-operatives or own their own wind turbines. Wind Power has become a big business for Denmark; it exports windmills to 35 countries and Denmark now accounts for more than 50% of all the devices manufactured in the world. Germany also has extensive wind applications and is a large wind machine manufacturer and exporter. The potential exists for developing countries also to manufacture and market their own wind machines.

Solar energy presents great development opportunities in developing countries, particularly since most of them are in the Sun Belt. Solar photovoltaic energy is uniquely useful in rural areas unserved by electric grids, to provide basic services such as refrigeration, irrigation, communications and lighting. For example, China today is promoting widespread use of photovoltaic energy and is manufacturing photovoltaic cells for export. Solar thermal energy is particularly suited to the large demand for heat in the domestic, agricultural, industrial and commercial sectors of the economy. It is applied successfully for water heating, industrial process heating, drying, refrigeration and air conditioning, cooking, water desalination and purification (through use of solar ponds), pumping and power generation.

Solar energy often is far more efficient than existing energy uses. For lighting, a photovoltaic compact fluorescent light system is 100 times more efficient than kerosene, used in the rural areas of many developing countries to provide night lighting. Photovoltaic systems also avoid the high costs and pollution problems of standard fossil-fueled power plants.

Utilization of biomass is a very attractive energy resource, particularly for developing countries since biomass uses local feedstocks and labor. Crop wastes, cellulosic biomass and crops raised to provide energy feedstocks on otherwise barren lands are good energy sources for industry, electricity production and home heating and cooking if used in efficient modern stoves or gasified. Brazil has pioneered successfully in growing energy crops of sugar to produce ethanol for use in vehicles, thus halving its oil imports.

Hydroelectricity is the largest renewable resource in use today, but mostly utilizing large dams. Large hydroelectric dams flood large of land and thus create environmental problems and problems of displacement of people or agriculture. The dammed water also creates some carbon dioxide and methane (another greenhouse gas) emissions from decaying vegetation. Adding power to existing dams, however, does not create these problems. But the placement of generating equipment at existing dams has great worldwide potential and no environmental consequences. Run of the river hydro systems are technologically more complex but also with minimal environmental consequences. Lastly, small dams can reduce the environmental harms of hydroelectric power production.

Hydrogen is the most promising alternative fuel for the future. It currently is produced from natural gas in a process less polluting than oil or coal-fired power plants. With improved and more economic technology, hydrogen can be produced from photovoltaic or wind-powered electrolysis, separating hydrogen from water, and from some seawater algae. The most likely near-term use of hydrogen is in fuel cells that can power vehicles or stationary electric generators. Hydrogen combustion is virtually pollution free, recombining hydrogen and oxygen to release...
water. Hydrogen is economically transportable in pipelines. The principal challenge for its widespread adoption is to bring down the cost of both hydrogen production and fuel cells. Also, an infrastructure must be constructed to transport the hydrogen, although existing natural gas pipelines can be used if treated. For vehicle use a distribution network must be established. This infrastructure work will involve large initial capital expenses. Hydrogen is sufficiently developed today so that a number of major vehicle manufacturers are planning to market fuel cell vehicles in the next few years and it is beginning to be used as an electric power source.

Footnotes
*Richard L. Ottinger is Dean Emeritus, Pace Law School. Rebecca Williams is Research Assistant to Dean Ottinger and a Pace Law student.

1 The largest solar thermal project was constructed by Luz International, Ltd., which constructed nine (I-IX) Solar Electric Generating System (SEGS) plants in the Mojave Desert. Generation costs have decreased by more than half since building the first plant. The cost of the SEGS I plant was $62 million ($4,500/kW), generation costs were 24 cents/kWh (in 1988 real levelized dollars). Investing $3,400/kW in improving technology reduced the generation costs of SEGS III-VI to 12 cents/kWh; investing $2,875/kW reduced costs further to between 8 and 10 cents/kWh for SEGS VIII and IX. Luz was able to finance the SEGS plants by raising over $1 billion and taking advantage of the available federal and state tax credits.

In the end, Luz International was forced to file for bankruptcy and turn over the SEGS plants to its investors. The following factors contributed to Luz’s financial difficulties: the piecemeal fashion of extending energy tax credits for solar energy property, building SEGS IX in 7 months to obtain the tax credit, the fact that the credit could not be applied against the alternative minimum tax established in the 1986 Tax Reform Act, and the size limitation of PURPA’s Qualifying Facility specifications for mandatory utility renewable purchases. See Profiles in Renewable Energy: Case Studies of Successful Utility-Sector Projects, National Renewable Energy Laboratory (Denver, Colorado 1999), available at http://www.nrel.gov/documents/profiles.html#uz.


4 Id.


6 TATA Energy Research Institute, supra note 3.

7 Id.

8 Id.


17 Hoge, W., In This Energy Project, No Tilting at Windmills, NEW YORK TIMES (October 9, 1999).


First Blush:
An Optimist’s View of Tahoe-Sierra

By Robert J. Goldstein

There are many in the field of environmental law who believe that the next generation of environmental law will involve the translation of the scientific principles of ecology, and the ethical teachings of environmental ethics into positive law. As this positive law is applied to private land, the translation will involve, necessarily, an adjustment of the expectation of private landowners. Perhaps the greatest barrier to the application of mandatory eco-stewardship to private lands has been the application of the regulatory takings doctrine.

That may have changed. The Supreme Court in Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency,1 may have opened the door for regulation that mandates eco-stewardship of land. In that case, the Court denied the petitioner’s argument for a categorical rule in the imposition of a moratorium on development that would have been akin to a physical takings analysis.2 Although current Supreme Court jurisprudence had been seen as expanding the regulatory takings doctrine to a point where it resembled the doctrine of physical takings, the Tahoe-Sierra case seems to have abruptly halted that trend.3 This decision should allow for a fact sensitive inquiry of regulatory takings cases, wherein the adjustment of expectations is examined, and ratified, as long as the regulation does not result in a “complete elimination of value.”4 That test, the legacy of Lucas v. South Carolina Coastal Council,5 was limited to “the extraordinary circumstance when no productive or economically beneficial use of land is permitted.”6 This approach by the Court leads to the acceptance of regulations that are based on realistic expectations, implicitly including those grounded in ecology and environmental ethics, which after a fact specific inquiry,7 will be analyzed under Penn Central Transp. Co. v. New York City.8 “The Penn Central analysis involves ‘a complex of factors including the regulation’s economic effect on the landowner, the extent to which the regulation interferes with reasonable investment-backed expectation, and the character of the government action.’”9 The application of this analysis, with its concomitant scrutiny of the facts that underlie the landowner’s expectation, supports reasonable environmental regulation that results in adjusting expectations.

Also critical in its decision, the Court noted that the courts must look at “the parcel as a whole,”10 noting that “where an owner possesses a full ‘bundle’ of property rights, the destruction of on ‘strand’ of the bundle is not a taking.”11 These two concepts, although grouped together by the Court are actually quite distinct. The Court’s mandate to look at the parcel as a whole requires any person claiming a regulatory taking to show that the taking is of the entire parcel, not merely portions of it. The Court defines the parcel as physical and temporal.12 For example, a court must consider both the uplands and wetlands owned by a landowner complaining of a regulatory taking based on a prohibition on building in the wetland. The Court’s reference to the bundle of property rights, means no stick is essential, unless its removal from the bundle amounts to a physical exclusion from the property.13

A justifying of expectations of a landowner, by definition, implies the modification of these ‘strands’ and, at worst, the destruction of a particular ‘strand,’ but not the wholesale destruction of the entire bundle.

Clearly, an adjustment of expectations, based on mandated eco-stewardship, is no longer defined by the Court as a per se regulatory taking, and can now pass Constitutional muster.

Conclusion

The doctrine of regulatory takings has always seemed to be a barrier to reaching the goal of mandatory eco-stewardship. Now it seems less so. The ability to limit the “property rights” of landowners in a legitimate attempt to address environmental problems will now focus on a fairness and justice inquiry that will look at realistic expectations.

Footnotes

2 Id. at LEXIS 34.
3 "[W]e do not apply our precedent from the physical takings context to regulatory takings claims." Id. at LEXIS 39.
4 Tahoe-Sierra, supra note 1 at LEXIS 50.
6 Tahoe-Sierra, supra note 1 at LEXIS 50 (emphasis supplied). The Court further limited the application of the Lucas “categorical rule,” noting that it “would not apply if the diminution in value were 95% instead of 100%.” Id. at LEXIS 50.
7 Id. at LEXIS 60.
10 Id. at LEXIS 45.
12 Tahoe-Sierra, supra note 1 at LEXIS 53.
13 The bundle is valuable for its notion of divisibility and accumulation of diverse and varying “sticks” that can amount to ownership. There seems to be no fixed formulation for when these incidents rise to the level that some term ownership. This is perhaps the strong point of the metaphor, rather than a weakness, in that it makes such an inquiry fact-sensitive.

Editor’s Note
The complete version of this article will appear in the Summer 2002 issue of Pace Environmental Law Review.
Editor Reveals: Secrets of the Pace Environmental Law Program

Did you know that the United Nations called the Pace Center for Environmental Legal Studies to assist in drafting a constitutional provision for environmental protection in Afghanistan? How about the fact that three Pace Law professors are lecturing at Yale this semester? Are you aware that Westchester’s leading environmental group has their office on our campus? Well, all these are true, and there are many more secrets about the environmental program that I’m about to reveal. I’ll let you in on some of these hidden treasures, but please, keep them to yourself!

Hudson River Museum

Okay, you say, where could they possibly hide a museum on campus? Well we’ve left several clues, and the big one is the boat parked outside its door. In a remote building called the E-House (you guessed it... “E”), open the front door and you’ve entered the museum, complete with an aquarium that simulates the Hudson environment, accurate down to the broken bottles and debris. Step inside and you can see a unique and extensive mural depicting the history of the river, and environmental law.

You may not be aware of the link between the Hudson and environmental law, but it is well documented at the museum, and on a set of panels located

on the fourth floor of Preston Hall. There you can see photos and a description of the Storm King case, which many consider to be the start of environmental law. Incidentally, the attorney who litigated that case was a Pace faculty member and has donated his papers to the law library. He is David Sive, and his archive is being preserved and will eventually be available for research.

It’s a Small World

You may never take a course in comparative law, but at Pace the course in Comparative Environmental Law is quite unique. First of all, the students are from all over the world, China, Brazil, Kuwait, Korea, Russia, and many others. This gives the class a unique perspective, especially since most of these students are already lawyers in their own country, and are here to earn their Master’s degree in environmental law (LL.M.). The class also has students from Singapore, only they aren’t actually in the class. Using the Internet, the class is beamed to the National University of Singapore, where despite a twelve hour time-difference, a professor and her students participate in the discussion. A crucially, the last time they offered the course, a Norwegian student also participated, despite the fact that it was 4:00 a.m. in Norway!

Professor Nick Robinson teaches the course, but his activities internationally are anything but virtual. A recent meeting all over the globe, he might be in an international meeting in Switzerland one day, and dedicating a law center in Kuwait the next. As the chair of the Commission on Environmental Law for the International Union for the Conservation of Nature (IUCN), he is the world’s leading environmental lawyer. In addition, since the IUCN recently was given Permanent Observer Status at the United Nations, Prof. Robinson is the delegation’s counsel. Hence the call about the Afghani constitution. Robinson has set up environmental centers all over the world, all in conjunction with the Pace Center for Environmental Legal Studies.

Act Locally

If you can actually locate the E-House, you might take some time to browse through the museum, then be sure to meet some of that buildings exotic inhabitants. The first floor is occupied by the legendary Pace Environmental Litigation Clinic (ask to see the basement “War Room”). The people chained to their desks in front of computers are actually law students, and they are actually there voluntarily—they even compete for these positions at the Clinic, and they are happy - just ask them.

The second floor of the E-House is the home of the Pace Energy Project. This organization is involved in advocacy on energy issues, and if you have any interest in that topic, they would be happy to get you involved. Pace does offer a course in Energy Law (it’s actually called Energy and Natural Resources Law), and is taught by the Pace Energy Project’s executive director.

Down the hall from the Energy Project is the office of the Federated Conservationists of Westchester County (FCWC). An umbrella group...
Next, it explores comparative studies of public participation in environmental matters as a method for obtaining a clean environment.

Korean environmental laws and practice are analyzed for their potential benefit from the application of public participation laws. Finally, it examines the benefits and challenges of developing an environmental reserve, with international assistance, along the Demilitarized Zone (DMZ) separating North and South Korea.

Although existing environmental rights—citizens’ rights to a clean and healthy environment—help manage the environmental disputes and issues that arise between personal parties and government through tort or administrative laws, they do not cover issues that arise between man and nature. For example, according to the Endangered Species Act (ESA), people hold a legal obligation to protect the listed endangered species from development regardless of their direct or imminent benefit to people. However, the framework of a rights definition that focuses on a legal claim to ownership does not clearly answer why we have to protect nature for its sake and how to connect our legal interest to protected species that do not provide express benefits.

**Environmental Rights**

In order to fully understand the laws and regulations broadening our responsibility to nature, it is necessary to reconsider our environmental rights. Existing environmental rights stand on a subject-object relationship between humans and nature. From this viewpoint, nature is a simple property right or natural resource from which people only benefit economically. This viewpoint is based on the Utilitarian philosophy of John Stuart Mills and was followed by Conservationists like President Theodore Roosevelt and the first chief of the U.S. Forest Service, Gifford Pinchot. They believed natural resources needed to be managed for sustainable use to provide the greatest good to the greatest number of people for the longest time. Based on this Utilitarian theme, environmental statutes of the 1970s were legislated to produce specific resources for human consumption based on the multiple-use management standard, for example, the National Forest Management Act of 1975 and the Multiple Use Sustained-Yield Act of 1960.

However, if Utilitarianism means providing the greatest number to the greatest number in the community, it is desirable to include nature as a party in the environmentally protected community. Western philosophers Aldo Leopold and John Muir and historian Donald Worster viewed the community as including nature as well as people. This understanding of man as a plain member of the ecosystem with stewardship responsibilities toward nature can be also found in the Eastern philosophy of Taoism and Buddhism and in the tradition of Native Americans. Taoism especially considers nature as one of our community members and highlights the human obligation to nature.

A according to Taoism, living in harmony with nature is one of the main codes of natural law; and this human obligation is more important than the human right to a clean environment.

According to Taoism, living in harmony with nature is one of the main codes of natural law; and this human obligation is more important than the human right to a clean environment.


department of the natural community and is obligated to maintain that community to protect the community and himself) are characteristically distinct from those of the West (i.e., man is superior to nature, which exists for his benefit), a disparity exists in their legal view of environmental law. In the West, people tend to focus on environmental rights, which conjure up legal aspects of property rights and the like; however, in the East, the perception is that humans have environmental obligations. Much environmental destruction is due to a legal rights viewpoint based on a subject-object relationship that considers nature an object for possession or exploitation. To alleviate the current environmental crisis in the jurisprudential realm, a balance must be sought between the Western legal rights viewpoint and the Eastern legal obligation viewpoint. This approach, based on the Korean chung-yong, one of the basic Confucian Codes of Morality, could potentially contribute to legal solutions for environmental degradation.

As a matter of law, nature does not have a legal personality; therefore, nature cannot go to court for its own protection. It is only possible to protect nature for its sake when people act as spokesmen for nature, as in Justice Douglas’ dissenting opinion in the Sierra Club v. Morton case. It might be arguable that nature also has a basic right to be protected by man, such as an intrinsic right to perpetuate with minimal disturbance of the natural cycles that benefit both nature and man. This right of nature is a prerequisite of man’s right to live in a clean and healthy environment and man’s obligation to nature. Nonetheless, it is impossible to recognize and accept this right of nature in the existing legal framework in which only humans and certain legal entities are considered legal persons.

Existing legal frameworks explain the legal position of humans to nature regarding benefits from nature as a kind of privilege with no burden of obligation. However, humans have both a legal obligation not to disturb other people’s environmental rights and a
legal obligation to protect nature for its sake (established in the ESA). Thus, it is desirable to include the rights of nature, which are human obligations, as human rights not only because nature cannot claim such rights but also because man is a part of nature. Moreover, international covenants and many countries’ constitutions declare the legal obligation of humans to the environment.10

More than 70 countries have constitutions that declare the importance of environmental protection and provide both rights and obligations to nature, and some of them regulate the environmental legal relationship with nature as not rights but obligations of citizens.11 Thus, as a member of the ecosystem community, humans have both an inherent right to benefit from and not be harmed by the ecosystem as well as an obligation to maintain it in such a way as to protect that right.Jurisprudentially, environmental law can be defined as the positive and common law that reflects environmentalism.12 In this thesis, environmentalism is environmental stewardship based on the middle ground of Western and Eastern environmental ethics. Humans should assume ethical environmental stewardship obligations to conserve natural systems for our benefit and for nature’s sake. Environmental law can therefore be explained as an effort to institutionalize environmental stewardship obligations. Even though environmental law is defined as institutionalized stewardship from a legal perspective, environmental stewardship remains more a statement of aspiration than a positive description of law. For this reason, this thesis proposes that environmental obligation should be embodied into the present environmental rights definition. From this perspective, legal systems based on Western rights can compensate with an environmental obligation viewpoint.

The procedural law part of this thesis provides a method for achieving a clean environment that involves citizen’s rights to participate in environmental matters. Even though there are sound environmental rights provisions in constitutions as substantial rights, it is difficult to achieve those rights without procedural rights. The right of public participation in environmental law is defined in this thesis as civil society’s full range of options that engage and integrate the public into the process of making or implementing an environmental policy choice.13

The Åarhus Convention

The Åarhus Convention on Access to Information, Public Participation in Decision-Making Process and Access to Justice in Environmental Matters is explored as model law of public participation because it is the most comprehensive international agreement on laws regulating public participation in environmental matters by examining three categories: access to information (before decision-making), access to process (during decision-making), and access to justice (after decision-making).

As a case study, this thesis addresses concerns about environmental law and public participation in the South Korean legal system. South Korea has several problems with its environmental law. First, South Korea has no comprehensive theory for protecting and preserving the environment like the US Public Trust Doctrine. They do have a constitutional right to a healthy and clean environment, which is not self-executing according to the Korean Supreme Court.16 Second, just as the US courts did prior to the Data Processing Service case decision,17 South Korean courts presently apply a legal interest test for prudential standing, thereby prejudicing environmental interests. In other words, a plaintiff seeking redress for environmental harm must demonstrate injury to a legal interest to obtain judicial review of governmental agency action. Unless an interest is founded in a statute interpreted to protect the interest of a private individual, the individual cannot seek judicial review of governmental agency action, meaning that individuals affected by a project cannot sue the government when it grants the permit for the project because statutes are not interpreted to take into account the interests of local residents or the public.

To tackle these legal problems, adopting the Åarhus Convention could help in implementing a citizen suit system in South Korea. Its adoption would be advantageous to civil society by appointing the court as an appropriate medium for resolving environmental rights claims because access to justice is a powerful tool and a fundamental element of public participation to develop the basic rights of the individual. Ratifying the Åarhus Convention could provide advantages for more effective public participation in South Korea. South Korean environmental regulations, not actively enforced in the 1970s and 1980s due to the priority on eco-
nomic development, have strengthened with citizen participation since the mid-1990s. The public’s concerns for the environment and active participation in decision-making processes have made environmental laws more vigorous. In this sense, the Åarhus Convention, which asks signatory countries to enforce public participation in environmental matters, would provide opportunities to further develop the South Korean system.

Both Koreas

This thesis also addresses the question of how to apply a public participation system in North Korea through an examination of environmental issues that may arise during the process of unification. Even though North Korea has environmental law and regulations, it is doubtful, for economic reasons, that the public participation system within them works. In the unification process, some adverse effects to the environment are anticipated, especially during economic development.

South Korea, which had the same experience, can help North Korea. When problems occur during economic cooperation with South Korea, application of South Korean environmental laws could help. Ultimately, the development of environmental laws in North Korea will allow for sustainable development. However, this will be possible only when North Korea has adopted an environmental infrastructure that includes environmental education for the public; environmental training for environmental experts, judges, and government officers; and strict government enforcement. South Korea and certain international organizations could assist in this matter.

Improving public participation and environmental laws in North Korea would have other benefits. Poverty, an issue of human rights, would decrease in response to economic development. In addition, adopting public participation in the environmental protection process would benefit North Koreans by improving governmental accountability and transparency in the decision-making process and encouraging a Western democratic style of government.

DMZ to Park?

Finally, this thesis specifically examines a possible project, the “Ecological Park in the Korean Demilitarized Zone.” Its establishment would not only preserve the nature surrounding the DMZ but also to reduce the military tension between the two Koreas, to build a basis for public participation across the DMZ, and to secure the environment of the DMZ as a natural heritage of all Korean people, fulfilling an aspect of their environmental right to a sound environment.

Footnotes

3 16 U.S.C §§ 528-531.
4 ALDO LEOPOLD, A SAND COUNTY ALMANAC: WITH ESSAYS ON CONSERVATION FROM ROUND RIVER, (1966); DONALD WORSTER, NATURE’S ECONOMY; A HISTORY OF ECOLOGICAL IDEAS (1994).
7 Lynn White, Jr., The Historical Roots of Our Ecological Crisis, SCIENCE, 1967.
9 Peter Manus, One Hundred Years of Green: A Legal Perspective on ThreeTwentieth Century Nature Philosophers, U. PITT. L. REV. (Spring, 1998); Wesley Newcomb Hohfeld, Some Fundamental Legal Conceptions as Applied in Judicial Reasoning, YALE L. J. (1913).
10 The Stockholm Declaration Pre-amble 2; The Draft Covenant on Environmental Conservation and Sustainable Use of Natural Resources of the International Union for the Conservation of Nature and Natural Resources (IUCN) Article 12(2); The World Charter for Nature Principle 24; and Preamble of the Åarhus Convention.
11 Constitution of Colombia, Cuba, Estonia, Guyana, Haiti, India, Laos, Madagascar, Papua New Guinea, Poland, Tanzania, Vanuatu, Viet Nam.
16 Hong Sik Cho, An Overview of Korean Environmental Law, ENVTL. L. (Fall, 1999).
chemicals. Specifically, toxic chemicals that persist in the environment, that can be transported globally through water and air currents and bioaccumulate in fatty tissue.

Since after World War II, tens of thousands of new, synthetic chemicals have been manufactured and released into the environment. More than 100,000 chemical substances have entered into the market since 1945, and it is estimated that 75,000 of them are still in commercial use. During the 1960s, scientists studying the environment came to the conclusion for the first time that some of these industrial chemicals were causing severe and long-term negative impacts on humans and the environment.2 Popular awareness of this danger grew with the publication of Rachel Carson’s “Silent Spring” in 1962, which helped to spark the post-war environmental movement.3 This led to nations become increasingly aware of the potential hazardous effects on human health and the environment of chemical substances and began to adopt a variety of measures at the national level to address the problems.4

II. Characteristics of Persistent Organic Pollutants

Persistent Organic Pollutants (POPs) are the most problematic chemical substances to which natural systems can be exposed due to three main characteristics that make them particularly dangerous:

a) Toxicity, which is the potency of a poisonous substance, the degree to which it is harmful disrupting biological systems causing various toxic effects;

b) Persistence, meaning the length of time that a chemical substance, a pesticide for instance, remains in the environment. POPs resist degradation through physical, photolytic, chemical, or biological processes;

c) Bioaccumulation, meaning the absorption and concentration of toxic chemicals in living organisms. Heavy metals and pesticides, such as DDT, are stored in the fatty tissues of animals and passed along to predators of those animals. The result is higher concentration of the pesticide in fatty tissue, eventually reaching harmful levels in predators at the top of the food chain, such as polar bears, toothed whales, seals and humans. This happens because POPs build up when one animal eats another that is contaminated.

Persistent Organic Pollutants are also semi-volatile, that is they evaporate relatively slowly and, therefore, tend to enter the air, travel long distances on air currents and return to earth. In colder regions less POPs tend to evaporate, resulting in higher levels of accumulation in regions such as the Arctic, thousands of miles away from their original sources. For this reason the highest exposed populations are aboriginal peoples living in the polar region, far distant from most sources of these chemicals, for example, the Inuit who live in the circumpolar region. POPs also present low water solubility and have the potential to cause harmful effects on humans and other organisms even at the very low concentrations at which they are now found in the environment, wildlife and us.5

POPs are represented by two important subgroups including both the polycyclic aromatic hydrocarbons and some halogenated hydrocarbons. The halogenated hydrocarbons include several organochlorines that have proven to be most resistant to degradation and which have had wide production, use and release characteristics. These chlorinated hydrocarbon compounds originated almost entirely from anthropogenic sources associated largely with the manufacture, use and disposition of pesticides such as dieldrin (insecticide), DDT (insecticide), toxaphene (insecticide), endrin (insecticide and rodenticide), heptachlor (insecticide), hexachloroberzenene (fungicide and a by-product of pesticide production), aldrin (insecticide), mirex (insecticide and flame retardant), and chlordane (insecticide), several industrial chemical products such as Polychlorinated biphenyls (PCBs - liquid insulators in transformers; ingredients in some paints, adhesives, and resins) and industrial by-products, formed unintentionally in a wide range of manufacturing and combustion processes and of wood pulp bleaching including dibenzo-p-dioxins (dioxins) and dibenzo-p-furans (furans).6

III. Effects of POPs on Human Health

Although much remains to be done on the study of the human health impact of exposure to POPs, the weight of scientific research suggests that POPs have the potential to cause significant adverse effects to human health. Work exposure to these toxic chemicals is a major concern, especially in developing countries where the use of organochlorinated pesticides ... has resulted in a large number of death and injuries.
has linked PCB exposures in humans with otitis media and immune system disorders. This occurs because the Inuit peoples depend heavily on seal and beluga whale meat and fat on their diet. Since most organochlorinated chemicals and pesticides bioaccumulate on fatty tissues these marine mammals serve as reservoirs of POPs. Many scientists strongly suspect a link between fetal and neonatal exposure to POPs and the increase in number of diseases including testicular cancer, hypospadias, endometriosis, and breast cancer. See Table 1 on page 17, as an illustration.

IV. Environmental Effects of POPs

Wildlife species encounter a broad range of environmental exposure and frequently to a mixture of chemicals at any one time. A growing body of scientific evidence indicates that exposure to very low doses of certain POPs can lead to cancer, damage to the central and peripheral nervous systems, diseases of the immune system, reproductive disorders and population decline, behavioral abnormalities and masculinization of females and feminization of males. The World Wildlife Fund, a reputable NGO that works on a mission to conserve the world’s biodiversity and promote the reduction of pollution to save fauna tracks the growing body of scientific research and have collected enough evidence of adverse effects of POPs on wildlife. For example, Orca (killer whale) swimming in the waters around Washington and British Columbia are considered among the most contaminated marine mammals in the world, carrying PCB levels in their fatty tissue of over 200 parts per million. Male alligators in Florida’s Lake Apopka have visible genitalia abnormalities and, consequently, difficulty reproducing due to elevated levels of dieldrin, toxaphene, chlordane and DDT in their bodies. Albatrosses nesting on remote Midway Island, thousand of miles from industrial areas, carry in their body tissue a combination of PCBs, furans and dioxins. Whale meat sold in Japan has been contaminated with levels up to 172 times the tolerable daily intake recommended by public health officials in Japan. Artic reindeer in Russia are heavily contaminated with PCBs and female bears in the region of Svalbard in Norway present reproductive abnormalities, causing population decline. Saint Lawrence Beluga whales demonstrated high incidence of tumors due to elevated concentrations of PCBs, mirex, chlordane and toxaphene in their fatty tissue.

Table 1: A pregnant or nursing woman eats more than the average man of 16 of the 50 most heavily POP-contaminated foods in the United States. Most contaminated foods consumed more by pregnant women than men.

<table>
<thead>
<tr>
<th>Persistent Organic Pollutants:</th>
<th>American Cheese</th>
<th>Dieldrin, DDT, heptachlor, hexachlorobenzene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter</td>
<td>Chlordane, DDT, dieldrin, heptachlor, hexachlorobenzene</td>
<td>Cheddar Cheese</td>
</tr>
<tr>
<td>Cheddar Cheese</td>
<td>Dieldrin, DDT, heptachlor, hexachlorobenzene</td>
<td>Cheeseburgers</td>
</tr>
<tr>
<td>Cheeseburgers</td>
<td>Dieldrin, DDT, heptachlor</td>
<td>Dill pickles</td>
</tr>
<tr>
<td>Dill pickles</td>
<td>Chlordane, dieldrin, DDT, toxaphene, heptachlor</td>
<td>Hamburgers</td>
</tr>
<tr>
<td>Hamburgers</td>
<td>Dieldrin, DDT, heptachlor, hexachlorobenzene</td>
<td>Lasagna with meat</td>
</tr>
<tr>
<td>Lasagna with meat</td>
<td>Dieldrin, DDT</td>
<td>Peanuts butter</td>
</tr>
<tr>
<td>Peanuts butter</td>
<td>Dieldrin, DDT, toxaphene, hexachlorobenzene</td>
<td>Peanuts</td>
</tr>
<tr>
<td>Peanuts</td>
<td>Dieldrin, DDT, toxaphene, hexachlorobenzene</td>
<td>Pepperoni pizza</td>
</tr>
<tr>
<td>Pepperoni pizza</td>
<td>Dieldrin, DDT</td>
<td>Potato chips</td>
</tr>
<tr>
<td>Potato chips</td>
<td>Chlordane, dieldrin, DDT, heptachlor</td>
<td>Pumpkin pie</td>
</tr>
<tr>
<td>Pumpkin pie</td>
<td>Dieldrin</td>
<td>DDT</td>
</tr>
<tr>
<td>DDT</td>
<td>Sour cream</td>
<td>Dieldrin, DDT, heptachlor, hexachlorobenzene</td>
</tr>
<tr>
<td>Sour cream</td>
<td>Vanilla ice cream</td>
<td>Dieldrin, DDT</td>
</tr>
<tr>
<td>Dieldrin, DDT</td>
<td>Whole milk</td>
<td>Dieldrin, DDT</td>
</tr>
</tbody>
</table>

V. International Legal Action to Eliminate POPs

The United Nations Conference on Environment and Development in 1992, held in Rio de Janeiro, was the initial cornerstone when governments from over 140 nations recommended taking measures to reduce and eliminate discharges of persistent organic pollutants. Delegates at the Summit developed a set of principles to protect the environment and development of the nations, called the Rio Declaration, and also a detailed blueprint for actions to achieve sustainable development in the coming century called Agenda 21. This world summit provided a major impetus for expanding international work in the area of hazardous chemicals. Governments have since recognized that environmental dangers do not respect national borders, no matter how developed the country is or how well guarded it is. Agenda 21 does not presume to propose solutions that will completely solve all of the problems confronting humankind and the environment, but rather it introduces a series of actions by which local, regional, and international solutions can be identified and put into practice. Chapter 17 of Agenda 21 deals with the protection of the Oceans, all kinds of seas, including enclosed and semi-enclosed seas and coastal areas and the protection, rational use and development of their living resources. Section B of Chapter 17 identifies the need to reduce and eliminate emissions and discharge of organohalogens and other persistent organic pollutants. Chapter 19 of Agenda 21 sets forth a comprehensive set of rules regarding “Environmentally Sound Management of Toxic Chemicals Including Prevention of Illegal International Trade in Traffic in Toxic and Dangerous Products.” This approach was prompted by the increasing international concern that toxic products circulate out in violation of existing national and international law. Therefore, requiring inter-
national cooperation in the prevention of illegal traffic of toxic substances, among which POPs are included. The objective of chapter 19 of Agenda 21 is to strengthen international chemical risk assessment and to set forth guidelines for acceptable exposure levels for a number of chemical substances. This Chapter also helped to withdraw international attention on POPs by emphasizing the importance of dealing with all chemical substances that are “toxic, persistent and bioaccumulative and whose use cannot be adequately controlled.”20 A genda 21 certainly laid the groundwork for building international awareness and helped set the right political momentum toward the preparation of an international legally binding treaty on persistent organic pollutants.

As a matter of process, government’s representatives need a mandate from their political leadership to start negotiations of a treaty and the United Nations Environmental Programme (UNEP) Governing Council offered a forum to fulfill this requirement. The UNEP Governing Council’s Decision 18/32 of 25th May 199521 authorized the Executive Director to prepare for and convene, in consultations with Governments and other relevant international organizations, to recommend further measures to eliminate the risks of persistent organic pollutants. From this mandate a consistent and solid bulk of scientific evidence was gathered to serve as foundation to delegates. Later, in February 1997 UNEP Governing Council adopted Decision 19/13C concluding immediate need to initiate international action to protect human health and the environment through measures that would “reduce or eliminate” emissions and discharges of persistent organic pollutants.22

With its mandate adopted, the international community launched negotiations of a legally binding global instrument to eliminate persistent organic pollutants with the first session of the Intergovernmental Negotiating Committee (INC) in Montreal, Canada on June 29 to July 3, 1998, with over 95 countries present. Further sessions of the INC have taken place in INC-2 in Nairobi, January 1999, INC-3 in Geneva, September 1999, INC-4 in Bonn, March 2000, INC-5 in Johannesburg, December 2000, and finally a Diplomatic Conference to adopt the Stockholm Convention on Persistent Organic Pollutants,23 in Stockholm, May 2001. The Convention has 30 articles and six annexes, which form its integral part. A annex A lists the following nine chemicals, produced or used, which are subject to elimination (with certain exemptions): aldrin, dieldrin, endrin, chlordane, heptachlor, hexachlorobenzene (HCB), polychlorinated biphenyls (PCBs), mirex and toxaphene. A annex B includes the chemical DDT, produced or used, which is subject to restriction (with acceptable purposes on certain exemptions). A annex C lists the following four chemicals: dioxins, furans, HCB, and PCBs, which are produced and released unintentionally as the result of anthropogenic activities in particular via combustion such as hospital and municipal waste incineration, and open burning of garbage. A annex D contains information requirements and criteria for screening chemical substances that parties propose as additions to initially listed substances. A annex E includes information requirement for the risk profile and A annex F contains information on socio-economic considerations.24

The upcoming 6th INC meeting is scheduled to happen in Geneva, on June 17-21, 2002.25

Clear, precise and manageable steps will have to be established for [persistent organic pollutants], aimed at their phasing-out.

VI. Conclusion.

Due to the biochemical properties of POPs (toxicity, bioaccumulation, persistence and ability for long-range transport) and the continued intense use, manufacture and disposal of hazardous chemicals its effects are likely to continue contaminate and poison humans and the environment. Therefore, the Convention is welcomed and governments should sign and ratify the treaty as soon as possible since its objective is to ban some of the world’s most dangerous chemicals. There should be global efforts to eliminate immediately all manufacture, use and transport of persistent organic pollutants and established environmentally sound handling of all existing stockpiles of obsolete POPs around the world. Developing countries have none the financial resources or the expertise to implement the requirements of the Convention, although they are fully aware and willing to comply with its provisions. Therefore, a joint effort should be sought to help developing countries find alternatives chemicals to enable them solve public health issues, such as vector control, and grant them financial resources to help them implement the Convention. The POPs Convention provides clear science-based procedures to eliminate and add new hazardous chemical substances to its list and incentives for broad public involvement. Clear, precise and manageable steps will have to be established for those chemicals, aimed at their phasing-out. National legal systems need to be improved to face the need to regulated in domestic level to provide significant means to enhance the Convention implementation. Although to this day 114 countries have signed to the Convention and 4 countries (Canada, Fiji, Lesotho, and the Netherlands) have ratified it, implementation will depend on national and local governments and their commitment and to some extent to the capacity of their population’s attitude to the issue.

Sufficient scientific evidence demonstrates the danger of persistent organic pollutants on wildlife and human health, and our hope is to avoid further
preposterous behavior of those whose aim is only their economic benefits. So far, we have experienced that it is only when an explicit demand arises that environmental problems are addressed. The present POPs regime attempts to provide the appropriate control mechanism to confront the problems and achieve the world’s environmental, economic and social justice goals.

**Footnotes**

1 Marco Antonio Olsen is an SJD Candidate at Pace Law School.


3 Rachel Carson, Silent Spring (1962).


7 Theo Colborn et al., Our Stolen Future: Are We Threatening Our Fertility, Intelligence, and Survival? A Scientific Detective Story, 105-115 (1997).

8 See UNEP Report, supra note 5.


10 Dewailly E. et al., Susceptibility to Infectious and Immune Status in Inuit Infants Exposed to Organochlorines, 108 ENVTL. HEALTH PERSPECTIVES, 205-211 (2000).

11 Hypospadias is a birth defect found in boys in which there is an abnormal positioning of the meatus, the opening from which urine passes.

12 Endometriosis is a painful, cyclic disease in which the uterine lining, or endometrium, becomes invasive and proliferates in areas where it does not belong throughout the pelvis and abdomen. See Bruner-Tran, K., Rier, S., Eisenberg, E., Osteenn, K., The Potential Role of Environmental Toxins in the Pathophysiology of Endometriosis, 48 GYNECOLOGIC AND OBSTETRIC INVESTIGATION, 45-56 (Suppl. S1)(2000).


15 See Carson, supra note 3.


17 A genda 21, Chapter 17 - Protection of the Oceans, all kinds of seas, including enclosed and semi-enclosed seas and coastal areas and the protection, rational use and development of their living resources, at http://www.unep.org/Documents/Default.asp?DocumentID=52 (Site accessed Jan. 24, 2002).

18 See id, Chapter 17 (28).


20 See id, Chapter 19.49 (b) and (c).


Each of the three pillars of environmental governance, access to information, public participation, and access to justice, has key criteria for successful implementation.
tionally referred to as “passive” access to information, as the government makes information public as it is requested. The information – including documents, reports, data, and other forms – usually is available for inspection free of charge, and a reasonable fee may be charged to copy the information.

Governmental authorities must also undertake a variety of measures to affirmatively collect, process, and publicly disseminate information on the environment and public health.12 For example, national governments must produce regular state of the environment reports.13 Another mechanism is the pollution or emission inventory, which may be as advanced as a Pollutant Release and Transfer Register (PRTR) system.14 Environmental impact assessment (EIA) is widely promoted as a means of disseminating information on potential projects and fostering public involvement and review.15 Other mechanisms that are promoted include publicly accessible electronic databases,16 indicators to measure information and participation mechanisms,17 environmental auditing,18 and eco-labeling.19

Public Participation
Public participation is usually guaranteed for proposed projects and activities that could have a significant effect on the environment through environmental impact assessment (EIA).20 Increasingly, public participation is also provided for (or mandated) in the development of plans, policies, programs, and regulations.21 Participation should be early in the process, while options remain open,22 and continue through all stages of the decision-making process.23

Notice of the proposed decision should be published, identifying the nature of the proposed decision, how the public can submit comments, and other relevant information.24 Information relating to the proposed decision, including the underlying data and analyses, should be made publicly available (often free of charge) with sufficient time for members of the public to review it and prepare their comments.25 The public should have a reasonable time in which to submit their comments orally or in writing.26 To ensure meaningful public participation, authorities must consider the submitted comments and give them due consideration when making their final decisions.27

Access to Justice
Access to justice ensures that persons and organizations (including public interest environmental NGOs) can appeal to the courts to protect their procedural rights of access to information and participation, as well as violations of substantive environmental laws. Thus, if someone believes that he or she has been wrongfully denied information or an opportunity to participate, they can seek redress in courts or quasi-judicial administrative processes.28

A Global Framework on Governance

Environmental impact assessment (EIA) is widely promoted as a means of disseminating information on potential projects and fostering public involvement and review.29 Additionally, where the government or a private party has been harmed by an environmental law violation (for example, relating to endangered species or water pollution), they may appeal to courts or administrative agencies.29

To be realized, rights to justice require an effective legal system. A fair, independent, affordable, and timely legal system is essential to ensuring meaningful access to justice.30 A ccess should be non-discriminatory, guaranteed without respect to one’s gender, citizenship, ethnicity, and other factors.31

Global Guidelines on Governance

One measure to improve governance of sustainable development around the world is the elaboration of global guidelines that set forth specific norms, mechanisms, and practices that promote public access to information, participation, and justice. These non-binding guidelines could assist local and national governments, as well as international institutions in improving public involvement in sustainable development. Considering the WSSD attention to sustainable development – including its environmental, economic, and social aspects – these guidelines should apply to all aspects of sustainable development, not just the environmental context.

Global guidelines could build upon the different regional initiatives, general international declarations, implementing provisions contained in multilateral environmental agreements, and
Global Framework, continued

experiences in developing and implementing environmental governance in local, national, and international institutions. As for the regional initiatives, a key element in the elaboration and implementation of global guidelines will be the full participation of civil society and NGOs. All nations, particularly those not already engaged in a regional dialogue on environmental governance, should be involved.

There are a variety of possible forms for the guidelines. For example, a “tool box” of mechanisms and case studies could allow nations and international institutions to choose mechanisms “à la carte” in determining an appropriate path for them in ensuring public involvement and good governance. Another option could be to develop a general framework of guidelines that could apply to all levels, with more specific guidelines developed that apply to specific regions and levels. Yet another approach could be to develop a single set of detailed guidelines that are generally applicable (perhaps including bracketed options) at all levels. These guidelines would constitute a unitary body of norms and mechanisms deemed necessary for good governance. Whichever approach is pursued, such an endeavor will require an organizing body, such as UNEP, to facilitate the review of regional initiatives and coordinate the development of guidelines. Financial resources may be sought from international, regional, and bilateral donors, and there must be assurance of adequate funding for national governments and NGOs to allow developing countries to participate.

Several potential impediments to this process remain, including meager funding, a lack of political will, and cultural (including linguistic) diversity. A truly participatory global process to develop guidelines will require a meaningful financial commitment, particularly for funds to include a broad cross-section of nations and civil society organizations. Linguistic diversity and illiteracy pose special challenges to providing effective access to information, since many nations simply cannot afford to translate all appropriate documents into all the relevant languages. Similarly, many nations lack the resources to establish publicly accessible electronic databases, which increasingly are relied upon to promote public access to information. Despite diplomatic proclamations about the value of transparency and participation, when it comes to developing specific, effective measures to ensure public access to information, participation, and justice, political will frequently fades. Such impediments should not bar nations or populations from having a voice in decisions that could affect them.

Creative solutions will need to be sought to overcome these challenges. Indeed, the process of developing, disseminating, and implementing global guidelines could highlight innovative approaches that reflect a diversity of cultural, legal, and economic realities, and ultimately lead to a more transparent, inclusive, accountable, and sustainable world.

A New Independent System for Monitoring Public Involvement

In light of the various experiences in developing and implementing environmental governance at the local, national, and regional levels, a framework for public involvement adopted at the WSSD could commit to establishing an independent mechanism for monitoring progress and exchanging experiences. By applying a commonly agreed upon set of indicators, nations and international institutions can identify progress, identify remaining gaps, exchange experiences in addressing those gaps, and promote the further development and implementation of public involvement measures. Such an independent monitoring mechanism could draw upon the work of the Access Initiative, a global network of NGOs that promote indicators for environmental governance, primarily at the national level.

To ensure its long-term viability, the monitoring mechanism will require an international commitment of technical, financial, and political support. It will also require the active participation of NGOs to maintain its credibility and independence. The most effective approach would probably entail a collaboration between civil society and governments.

Developed nations … will need to place a priority on providing financial and technical resources to assist national and local authorities in developing nations to build civil society and governmental capacity to operationalize these principles.

Strengthening Institutional Structures and Political Will

At the Summit, nations and international institutions will have the opportunity to reinforce their commitments to strengthening legal and institutional structures to ensure public access to information, participation, and justice. This priority on implementing mechanisms of good environmental governance will need to be accompanied by clear commitments of resources and political will to educate the public and engage them in developing norms, institutional mechanisms, and practices. Public education will be an essential step in mobilizing local constituencies to make use of existing spaces to participate in decisionmaking, as well as building momentum for further legal and institutional developments.

Developed nations and international institutions will need to place a priority on providing financial and technical resources to assist national and local authorities in developing nations to build civil society and governmental capacity to operationalize these principles. For example, the United Nations Institute for Training and Research (UNITAR) could offer training for government officials implementing...
laws and grassroots organizations that would likely take advantage of such information. Authorities at all levels should publicly establish timelines and plans for developing and implementing public involvement mechanisms.

Changes in domestic laws, policies, and institutions will likely have the largest effect on increasing the role that people have in addressing environmental impacts that could affect their lives. In committing to both a global framework and regional initiatives on public involvement, national governments may need to develop and modify domestic institutions. This will require technical and financial assistance from many sectors – NGOs, businesses, charitable foundations, bilateral aid, and regional and international institutions. Similarly, the exchange of best practices and lessons learned among nations in the same region could reinforce regional undertakings and support improved implementation of environmental governance throughout the region.

Conclusion

Good governance – including access to information, participation, and justice – has emerged as an essential aspect of environmental decision-making. As nations and international institutions strive to implement sustainable development, they will need to develop and implement public involvement laws, policies, and institutional mechanisms that ensure that the public has a voice in decisions that can affect them. A concerted international commitment to developing a global framework in which to share experiences and foster implementation can be a key mechanism for assisting nations in addressing these challenges.

Over the past decade, regional initiatives promoting environmental governance have developed and are already assisting many nations in the global North and South. The various initiatives include many common approaches and mechanisms, commonalities that may provide a starting point for a broad, participatory process of developing global guidelines. Together, these guidelines and international commitments of financial resources and political will could form a global framework to foster public-private partnerships for implementing sustainable development.

Footnotes

* Carl Bruch is a Senior Attorney and Coordinator of the Partnership for Public Participation at the Environmental Law Institute (ELI). Dorigen Fried is a Research Associate at ELI. Resources for this research were generously provided by the Richard and Rhoda Goldman Fund and by Jacob L. and Lillian Holtzmann Foundation.

1 For a more detailed analysis, see Carl E. Bruch & Roman Czebiniak, Globalizing Environmental Governance: Making the Leap from Regional Initiatives on Transparency, Participation, and Accountability in Environmental Matters, 32 EnvTL. L REP. 10428 (2002).


5 Rio Declaration on Environment and Development, prin. 10, done at Rio de Janeiro on June 14, 1992, reprinted in 31 I.L.M. 874 (1992) (providing Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information available to the Courts, they have to rely on the actions brought by the Ministry Publico, through the Public Prosecutors, and there is no private remediation for environmental damages.

For this reason, becoming familiar with the citizens’ suit provisions was a shock for me at first, because I could not imagine an environmental damage being monetarily awarded to a single plaintiff since the harm is spread to the whole society. However, now I understand the great value the citizens’ suit provisions have regarding access to justice and I wish the Brazilian Courts could decide actions brought by individuals in these terms.
Pace Environmental Litigation Clinic Docket

NEW CASES:

Riverkeeper v. Cooper

A property owner in the Manitou area of Garrison filed in a portion of the Hudson River in order to expand their property and construct a larger residence. The property owner failed to obtain a Clean Water Act fill permit for this fill. The Clinic has recently commenced a lawsuit in federal court seeking removal of the illegal fill.

Indian Point

The Clinic has filed a petition on behalf of Riverkeeper to close down Indian Point Nuclear Power Facility pending a review of safety concerns and evacuation planning in the wake of the September 11 attacks on the United States. The Clinic and Riverkeeper will continue to press for improved safety and security at this plant, which is located within 50 miles of over 20 million people.

Cooling Water Intake Regulations

EPA has recently announced the adoption of final regulations establishing Best Technology Available for cooling water intake structures at newly constructed power plants, pursuant to Clean Water Act section 316(b). The regulations adopt closed cycle, wet cooling technology as BTA, but provide for two alternative procedures that contemplate using less protective technology. The Clinic has filed a petition to challenge these regulations in the US Court of Appeals for the Second Circuit as insufficiently protective of aquatic environmental resources.

Stewart Airport Wetlands

The New York Thruway Authority has proposed to fill several acres of Class II wetlands in order to build a new highway interchange on Interstate 84 to promote development around Stewart Airport. Because the wetlands destruction does not serve a compelling interest, and because the environmental review failed to consider the induced development impacts on other wetlands, the Clinic has intervened in opposition to the permit on behalf of Riverkeeper. Although the Administrative Law Judge issued a recommended decision in favor of granting the permit, the Clinic has filed an appeal with the Commissioner of DEC.

UPDATED CASES:

Application of Mirant Bowline LLC, DEC No. 3-3922-0003/00015 – Bowline 3 Power Plant Application

Mirant (formerly known as Southern Energy) purchased the Bowline power plant, located on Haverstraw Bay, from Orange and Rockland Utilities. It applied to add a third generating unit to the plant. Riverkeeper, represented by the Clinic, intervened as a party opponent to the application, as Mirant proposed to use a wet cooling water system that does not reduce Hudson River impacts as much as a dry cooling system would. DEC also rejected a proposal to run the Bowline 3 cooling system with the effluent from Units 1 and 2, which would have eliminated the need for additional Hudson River water whenever these other units were in operation. The ALJ granted Riverkeeper’s intervention motion and ruled that all but one of Riverkeeper’s proposed issues raised grounds for an adjudicatory hearing. Clinic intern Jason Rich presented Riverkeeper’s proposed issues at the issues conference in March, 2001. Following adjudicatory hearings conducted in September, 2001, and further briefing by Clinic intern Jason Rich and Riverkeeper Attorney David Gordon, ALJ Kevin Cassutto issued a recommended decision substantially adopting Riverkeeper’s position and requiring dry cooling technology. More recently, DEC Commissioner Erin Crotty rejected this recommendation and directed issuance of the permit providing only for hybrid closed cycle cooling.

Neuse Riverkeeper v. Smithfield Foods

Clinic students have been working with local counsel in North Carolina on potential tort claims or federal environmental claims against pork producers to prevent water pollution from factory hog farms. Local counsel in North Carolina filed a complaint under state nuisance law over the Summer. More recently, the Clinic, working with Waterkeeper Alliance attorney Nicolette Hahn, commenced citizens suits under the federal Clean Water Act against several individual factory farms in North Carolina that have been leaking hog excrement into waterbodies in North Carolina. The United States District Court for the Eastern District of North Carolina rejected the defendants’ motion to dismiss the case. The Clinic has also been working with outside counsel to investigate potential claims in national litigation to address the environmental damage caused by factory hog farms.

No Spray Coalition v. New York City

The Clinic represents several groups that are opposed to the application of pesticides for mosquito control purposes related to the West Nile Virus outbreak. A notice of intent to sue was previously filed by the client organizations for unpermitted discharge of pesticides into waters without a Clean Water Act permit. The Clinic filed a Clean Water Act and RCRA case against the City of New York in July, and sought immediate injunctive relief against the spraying. Clinic students examined witnesses at the preliminary injunction hearing before Southern District Judge John S. Martin in September. Although the preliminary injunction was denied, the hearing attracted favorable press attention, including the playing of a videotape showing New York City pesticide spray trucks spraying crowds of people on streets corners in northern Manhattan. The Clinic’s appeal of the dismissal of its RCRA claim and denial of preliminary injunction was rejected by the Second Circuit. The case has proceeded through discovery on the remaining Clean Water Act claim.

Chappaqua School District

The Chappaqua School District proposed to build a new high school on the edge of the New York City reservoir, rather than building at other available sites further from the sensitive drinking water resources. The Clinic has filed comments on the environmental impact statement in opposition to this site, and is preparing to oppose any DEC permit for a septic system at the site.

Fleischmann’s Coalition for Junkyard Enforcement

The Clinic represents this community organization in its effort to resist the permitting and encroachment of automobile junkyards into the Village of Fleischmann’s downtown area, as well as areas adjacent to the New York City drinking water tributaries. The Clinic achieved one modest victory when, in response to a suit commenced by the Clinic, the City of New York withdrew its approval of a variance from the watershed regulations that it had granted to a junkyard without undergoing any SEQRA review. Nevertheless, the Village proceeded to rezone its industrial district to allow junkyards and to grant a special permit to one of the proposed junkyards closest to a stream. The Clinic filed proceedings under CPLR Article 78 to challenge each of these actions for SEQRA violations. These Article 78 proceedings were argued by Clinic student Peter Casper before New York Supreme Court Justice Joseph Hester. The court then granted the petition and annulled both the rezoning and the
special permit, precluding operation of a junkyard at the site absent full environmental review. Although the Village filed a notice of appeal from this decision, it has subsequently abandoned its appeal, and Clinic interns are seeking final closure of the facility.

Riverkeeper, Inc. v. Central Hudson Gas & Electric Co., S.D.N.Y. No. 99 Civ. 2536 (BDP)

The short-nosed sturgeon is an endangered fish species which inhabits and spawns in the Hudson River. Every year, quantities of short-nosed sturgeon are injured or killed when they are caught in cooling water intake structures at power plants operated by power utilities on the Hudson. None of these utilities has obtained the permit required under the Endangered Species Act for such “incidental” takings of endangered species.

In Spring, 1998, the Clinic filed a notice of intent to sue under the Endangered Species Act. This prompted the utilities to file a preliminary application for an incidental take permit with the National Marine Fisheries Service. Nevertheless, nearly a year has passed, and the utilities have failed to complete their application. In April, 1999, the Clinic commenced an action in federal district court against Central Hudson Gas & Electric Co. under the federal Endangered Species Act to enjoin its continued taking of endangered sturgeon without a permit. During the Summer and Fall of 1999, Clinic interns conducted document discovery, a site visit, and depositions of Central Hudson personnel. On November 15, 1999, the Clinic served a motion for summary judgment declaring Central Hudson to be in violation of the Endangered Species Act. Central Hudson cross-moved for summary judgment, ruling that Riverkeeper’s suit was not the catalyst for bringing Central Hudson into compliance with the Endangered Species Act.

Millenium Pipeline

Millenium Pipeline, sponsored by the Columbia Gas Company, has proposed to construct a natural gas pipeline across New York State, terminating in Westchester County. The proposed pipeline would cross Haverstraw Bay on the Hudson River.

Status: Riverkeeper has been granted active party status in the licensing proceeding before the Federal Energy Regulatory Commission. Riverkeeper will seek to ensure that, if built, the Hudson River crossing avoids impacts on the Hudson River and dangers to navigation. FERC granted the certificate application in December, 2001, and the Clinic has filed a petition for rehearing with FERC in order to preserve Riverkeeper’s right to challenge the certificate in court.

Shandaken Tunnel Turbidity

The Shandaken tunnel carries water from the Schoharie Reservoir to the Esopus Creek in the Catskills, which then flows into the Ashoken Reservoir. New York City DEP operates this tunnel as part of its water supply system. Esopus Creek is a renowned trout fishing stream. Unfortunately, the water that is piped in from Schoharie Creek is of much lower quality than the natural flow in the Esopus, and contains high amounts of suspended solids, clouding the clear waters of the Esopus, and ruining the Esopus for trout fishing. DEP has no Clean Water Act permit for this discharge of contaminated water into the Esopus Creek.

 Pace Environmental Litigation Clinic filed a notice of intent to sue DEP on behalf of Riverkeeper and several other Catskill sportsmen’s organizations. During February, 1999, through March, 2000, Clinic lawyers and interns have held a series of meetings with New York City DEP, New York State DEC, and the Attorney General’s office to determine if a negotiated resolution was possible.

These negotiations proved unsuccessful when New York City announced it felt no obligation to clean up the discharge, and the Clinic filed a complaint under the Clean Water Act on March 31, 2000. The City moved to dismiss, claiming that discharge of already polluted water from one watershed into another could not be the “addition” of a pollut-

The District Court denied this application, ruling that Riverkeeper’s suit was not the catalyst for bringing Central Hudson into compliance with the Endangered Species Act.

*Editor’s Note*

Luciana is completing her LL.M. at Pace Law School this semester, and will return to Manaus to continue her legal practice there.

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of the parties regarding a clean up of a site that contains one of the only deep water ports on the Hudson River north of New York City. Thanks to the Clinic’s efforts, the parties reached a settlement requiring the prompt removal of the accumulated construction and demolition debris by the site owner. Meanwhile, the Clinic continues to press for a full clean-up of the toxic contamination remaining from the Anaconda operation and Tappan Terminal. In October, 1999, Judge William C. Conner of the Southern District of New York granted the Clinic’s request to reactivate its RCRA case and for leave to file a motion for summary judgment declaring ARCO’s liability for cleanup of the site; these motion papers were served on December 1, 1999. ARCO responded by impleading the United States Navy as a third party defendant, which has had the effect of delaying resolution of Riverkeeper’s summary judgment motion.

The District Court denied summary judgment motions for either side, specifically finding that Riverkeeper has standing and that ARCO is responsible for PCB contamination of the site. Expert discovery and depositions have been completed this Fall. The trial date has been adjourned until June, 2002 in order to allow settlement discussion to proceed among the parties.


Nitrogen discharges from sewage treatment plants are a major cause of hypoxic, or low oxygen conditions, in the Long Island Sound and New York Harbor estuary. The Clinic represents Soundkeeper, Riverkeeper, Baykeeper, as well as several individuals, in a suit to enforce the nitrogen limits in the Clean Water Act permits for eight of New York City’s 14 sewage treatment plants. In October, 1998, the federal district court denied New York City’s motion to dismiss the complaint. Clinic students have been conducting depositions and discovery in this case during Summer and Fall terms of 1999, and prepared expert reports, which were served in November, 1999.

At a court-mediated settlement conference in January, 2000, Magistrate Judge Roanne Manne recommended that New York City make a payment in lieu of penalty of $4 million, and take measures to ensure that the violations are not repeated. A settlement order has now been executed and approved by the Department of Justice, and the final order should be entered very soon.
The Beach Zone; Using Local Land Use Authority to Preserve Barrier Islands

By Tiffany Eisberg & Jessica VanTine

For ages, the American people have treasured the aesthetic and recreational value of beaches. The beachfront is a place of insurmountable beauty, serenity, and grandeur. Many Americans escape to beaches in order to visit a place of remarkable biological diversity. Today, however, we face the bleak prospect of permanently losing our treasured beaches to a wave of development, particularly fostered by a lack of informed land-use decisions. Over the last few decades, the nation’s infatuation with beaches has spurred an increased desire to live on the coastline.1 Dozens of new homes are built every day on this fragile environment. Stable beaches can withstand an increase in development, however barrier islands are too transitional due to their natural processes to accommodate permanent structural development. “The natural processes responsible for the evolution of barrier islands and for much of their recreational and aesthetic appeal also make them hazardous places for humans to live.”2

Barrier islands are not the place for permanent development and preserving them through structural and other nonstructural solutions is of uncertain value.3 A regulatory solution is available that is both effective and realistic. This article is an exploration of the barrier island’s unique landform and the solution to its protection. Most important, this article is an attempt to offer a paramount solution, “the beach zone.”4

The dynamic nature of the barrier islands often make them unsuitable for permanent development. The barrier island system is an active strip of sand, which requires special attention. The erosion of the front side of the island and the growth of the backside are the key aspects of barrier island migration: the movement of the barrier islands toward land. The natural processes of the barrier islands migration, include tidal cycles, sea level rising, and periodic storm surges.5 Due to these processes, the beaches, dunes and marshes that make up the barrier islands are temporary in location and shape.6 This danger has resulted in an increased awareness by the public of the need for proper coastal management.

In order to sustain homes and structures on the barrier islands several methods have been instituted.7 These methods fall within two general categories: structural solutions and non-structural solutions.8 To date, the primary focus of both the private and public sectors has been on solutions that involve structural engineering. “Structural responses all involve doing something physically to the shore ... to hold the shore in place and keep it from moving.”9,10 This involves the emplacement of treated wood, rocks, concrete and or steel in the form of groins, jetties or shore-hardening structures. Also included in this category is beach nourishment.10 Structural solutions are financed and developed primarily by the United States Army Corps of Engineers (USACE).

Despite the USACE’s extensive investment in them, structural solutions have proved to be of dubious value because they alter the natural processes of the dynamic barrier islands, which through time, paradoxically, destroy the structures they were built to protect.11 Most structural solutions fail to allow the shoreline to migrate naturally and therefore cause accelerated erosion. Structural solutions on or near the shoreline change the natural balance and can be detrimental to the natural movement of the barrier island. The result is the degradation of the unique habitats on barrier islands, in turn endangering the native species.12 Many of these wildlife species are threatened or endangered. These species include the short-eared owl, the mud turtle, the pied-billed grebe, and the piping plover.

There has been a recent focus on nonstructural solutions to alleviate the shortcomings of structural solutions. Nonstructural solutions require the redesign of current building requirements, the restructuring of the federal insurance program, and the utilization of land acquisition options. However, most nonstructural solutions have their own inherent problems that limit their scope and effect.13 In contrast to structural solutions, non-structural solutions involve remedial methods that do not interfere with the dynamic processes of the barrier islands.14 Consequently, non-structural solutions do not cause or exacerbate beach erosion. Among these solutions are the use of construction standards, building retrofit measures, economic incentives, land acquisition measures, and land use and regulatory measures.15

There is a regulatory solution available that is both effective and practical: a zoning ordinance to be adopted by municipal legislatures. The zoning proposed is aimed at limiting land uses to those that are consistent with the natural processes of the barrier islands.

The fragile environmental areas of the barrier island will make up the Barrier Island Critical Zone (BICZ), designated by the municipality. The BICZ will allow only for “compatible uses”

The Beach Zone continues
The Beach Zone continues

with the environment of the barrier island. Compatible uses are those that do not adversely affect the island's natural processes and habitats. A as-of-right compatible use will be permitted by the ordinance. Such uses include public beaches, catwalks, campsites, fishing, non-motorized boating, and picnic areas. In addition, uses that are compatible, but require more extensive construction, such as bait and tackle shops, lockers, docks, parking lots and public restrooms, can be allowed as special uses subject to the issuance of a special permit. It is important to note that structural solutions are never deemed compatible uses pursuant to the ordinance.

Current permanent structures located on fragile barrier island environments that are not compatible uses under the legislation will be deemed nonconforming uses. A nonconforming use is created when "existing land uses, valid when established, are prohibited by a new or amended zoning law." Currently existing structures that will be considered nonconforming include all homes, restaurants, and shops. The proposed zoning ordinance will contain a nonconforming use provision providing a variety of methods to terminate such uses. This provision will allow the reestablishment of nonconforming uses after they have been discontinued for a period of time, require the termination of the nonconforming use after a stipulated amount of time (amortization period), place limitations on the expansion or enlargement of the use, and/or prohibit or limit reconstruction of damaged structures.

In establishing an amortization period, the time period must be of a length appropriate to allow the landowner to recoup his/her investment. This proposed zoning ordinance allows for a fifty-year amortization period, which gives the landowner sufficient time to settle any outstanding mortgages and recoup initial capital investments through occupancy or rental-income. Following the fifty-year amortization period, only compatible uses will be permitted. Therefore, any existing structures, not deemed compatible, must be terminated at the end of the amortization period.

During this fifty-year period, nonconforming uses cannot be expanded or enlarged. If twenty-five percent or more of the structure is destroyed, the existing structure cannot be rebuilt. In such a case, the property rights were destroyed by the disaster, rather than by the law. During the amortization period, if any natural process destroys the nonconforming use, the landowner will be permitted to construct a cottage, limited in size and scope. Following the fifty-year amortization period, the right to build a cottage is no longer available, and the cottage itself must be removed, leaving only compatible uses in the designated area.

As the natural processes continue, their land will eventually cease to exist ... finding a willing buyer may be an impossible task, due to the uncertain nature of the property. As these options are exercised, the Barrier Island Critical Zone (BICZ) will soon come under the public domain. As the barrier island functions through its transitional processes, the BICZ will also expand with this process. For example, as the barrier island migrates landward, the shoreline will continually be moving backwards, thus the BICZ will also be moving across the island with the shoreline. Therefore, the natural processes will eventually reclaim the entire barrier island. If history is a judge, the ultimate eventuality is the destruction of all permanent structures by the acts of God, not man, resulting in a barrier island that will endure through time for the enjoyment of future generations.

Footnotes

1 "Following World War II, society turned more and more to beaches for recreational opportunities, resulting in community growth along the nation's shores." National Research Council, Beach Nourishment and Protection, 59 (1995). This influx, solely due to a desire to live near the water's edge for its aesthetic and recreational appeal, has accelerated since the 1970s, despite the risk to life and property. Id.


3 Id.

4 Id.

5 Id.

6 Id.

7 Id.


9 Id. at 24.

10 Id. at 27.

11 Id.

12 Id.

13 Id.

14 Thomas Maier & Don Riley, On New Dunes, Building Boom, Newsday, Aug. 16, 1998 at A5; Thomas Maier, Line in the Sand, Newsday, Aug. 17, 1998 at A7; Thomas Maier, Putting Soft Solutions to the Test, Newsday,
as:

**Nonconforming Uses.**

A nonconforming use is a land use that is permitted as a principle use in a zoning district. In a single-family district, the construction of a single-family home is an as-of-right use of the lot.” *John R. Nolon, Well Grounded: Shaping the Destiny of the Empire State, 431 (1998).*

Special use permits are defined by the New York Town Law § 274(b) as:

an authorization of a particular land use which is permitted in a zoning ordinance or local law, subject to requirements imposed by such zoning ordinance or local law to assure that the proposed use is in harmony with such zoning ordinance or local law and will not adversely affect the neighborhood if such requirements are met.

If the local legislative body delegates the authority to approve special permits to another board, than it must also develop standards for that board to apply in issuing permits. Otherwise, the board’s power to review will be invalidated. *Liddle v. Young, 85 N.Y.S.2d 41 (N.Y. App. Div. 1948), aff’d, 87 N.E.2d 74 (1949).*

*John R. Nolon, supra note 17, at 134.

Id. “When property owners purpose the improvement, expansion, rebuilding or other change in their nonconforming property use, they must be certain to comply with local regulations governing those matters. Normally, these regulations are found in a discrete articles of the local zoning law, entitled Nonconforming Uses.”

The state’s enabling statutes that delegate to local governments the authority to adopt zoning regulations implicitly authorize local legislatures to adopt reasonable measures to protect the legitimate investment expectations of owners of developed land. *N.Y. Town Law §§ 261-263 (2000); see Nolon, supra note 17, at 135.*

As Nolon notes:

Nonconforming uses that are particularly inconsistent with zoning districts within which they exist and not immediately dangerous to public health or safety may be terminated or amortized within a prescribed number of years. This amortization period allows the landowner to recoup some or all of his investment in the offensive nonconforming use.

See *Harbison v. City of Buffalo, 152 N.E.2d 42 (N.Y. 1958)* (court sustained an amortization period which required the termination of nonconforming uses within three years); see also *Stringfellow’s v. City of New York, 694 N.E.2d 407 (N.Y. 1998)* (court allowed ordinance which contained a one year amortization period).

*John R. Nolon, supra note 17, at 136.

These provisions are premised on the theory that owners do not have a right to reconstruct a nonconforming building after damage by fire, weather, natural disaster, or otherwise. *Bobandal Realities, Inc. v. Worthington, 250 N.Y.S.2d 575 (App. Div. 1964), aff’d, 205 N.E.2d 685 (1965).*

*Nolon, supra note 17, at 136.


**Editor’s Note**

The complete version of this article will appear in the Winter 2002 issue of Pace Environmental Law Review, vol. 20.1, as part of a symposium edition on the topic of the advent of local environmental law, organized by Pace University School of Law Professor, John R. Nolon.

The symposium issue will contain papers by a number of distinguished law professors and practitioners on the context, details, and meaning of the rapidly increasing number of dedicated environmental laws that are being adopted by local legislatures.

For more information on this or any of the programs of the Land Use Law Center, please contact Ann Marie McCooey at 914-422-4262 or at landuse@law.pace.edu.

Global Framework, From Page 26 62F30F71be4ed8a241256569e003b5f73/ cf8656761a4e51b2c12562f4005d4fc2/ $FILE/03E65274.ENG (last visited Feb. 15, 2002).

E.g., *East African MOU, art. 14(2).*

Aarhus Convention, art. 5.3.

ISP, Proposed Action 3.1.3.

E.g., *Draft ASEM Elements, art. 14; Aarhus Convention, art. 5.6; NAAEC, art. 5.1(f).*

E.g., *Draft ASEM Elements, art. 14; Aarhus Convention, art. 5.8.*

E.g., *Draft ASEM Elements, arts. 23, 24, app. 2; Aarhus Convention, art. 6; ISP, prin. 4, Proposed Actions 2.1.2, 2.2.2, 6.3.2; East African MOU, arts. 7.1(b), 14.1, 14.2; see generally NAAEC, art. 2.1(e).*

E.g., *Draft ASEM Elements, art. 24, app. 2; Aarhus Convention, arts. 7, 8; ISP, prin. 4; see also NAAEC, arts. 1(h), 10.7(a).*

E.g., *Draft ASEM Elements, art. 23; Aarhus Convention, art. 6.4.*

ISP, Specific Objective b; *East African MOU, arts. 14.1, 14.2, 7.1(b).*

E.g., *Aarhus Convention, arts. 6.2, 6.3; NAAEC, art. 4.2.*

E.g., *Draft ASEM Elements, arts. 1, 8; Aarhus Convention, art. 6.6; see also East African MOU, art. 23.*

E.g., *Draft ASEM Elements, art. 23; Aarhus Convention, art. 6.7; East African MOU, art. 23; ISP, prin. 7; NAAEC, art. 4.2.*

E.g., *Draft ASEM Elements, art. 21; Aarhus Convention, art. 6.8; ISP, prin. 7; East African MOU, art. 23.*

E.g., *Draft ASEM Elements, art. 28; Aarhus Convention, arts. 9.1, 9.2; see also Carl Bruch et al., Constitutional Environmental Law: Giving Force to Fundamental Principles in Africa, 26 Colum. J. Envtl. L. 1, 86-201 (2001) (examining access to justice provisions in national constitutions).*

E.g., *Aarhus Convention, art. 9.3; East African MOU, arts. 16.2(d), 16.3; NAAEC, arts. 6.1, 6.2.* In fact, the NAAEC also established a separate mechanism allowing residents and organizations of any of the three Member States to submit a complaint that a
2002 National Environmental Law Moot Court Results

Winning Team

Allison LaPlante
Tanya Sanerib
Tyson Smith

NORTHWESTERN SCHOOL OF LAW OF LEWIS & CLARK COLLEGE

David Sive Award for Best Brief Overall

Lorraine A. Lewis
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UNIVERSITY OF WASHINGTON SCHOOL OF LAW

Best Oralist

K.D. Feeback

THE UNIVERSITY OF MONTANA SCHOOL OF LAW

Best Brief – Appellant/Intervenor

OHIO NORTHERN UNIVERSITY PETTIT COLLEGE OF LAW

Best Brief – Appellee

UNIVERSITY OF HAWAII WILLIAM S. RICHARDSON SCHOOL OF LAW

Member State is failing to effectively enforce its environmental laws. NAAEC, arts. 14, 15.

30 E.g., Draft ASEM Elements, art. 29; Aarhus Convention, arts. 9.1, 9.4; East African MOU, art. 16.2(d); ISP, Proposed Action 2.1.3; NAAEC, arts. 7.1, 7.2, 7.4.

31 E.g., Draft ASEM Elements, arts. 1, 18, 19; Aarhus Convention, art. 3.9 (for all procedural rights); ISP, Proposed Action 2.2.1; East African MOU, art. 16.2(d).


33 For example, Ethiopia has over 80 different recognized languages and dialects, and other African nations have even more.

34 See supra note 31.

The 2002 Moot Court Board Thanks

Final Round Judges
THE HONORABLE RICHARD T. ANDRIAS
New York State Supreme Court, Appellate Division

THE HONORABLE MARTHA C. DAUGHTREY
United States Court of Appeals for the Sixth Circuit

THE HONORABLE SCOTT C. FULTON
Environmental Appeals Board of the United States Environmental Protection Agency

All Our Judges

Special Thanks to:

The ABA Section of Environment, Energy, and Resources, the premier forum for lawyers working in areas affecting the environment, energy, and resources, for sponsoring this event; the student-led Moot Court Board, Megan Brillault, Chair; and Leslie Crincoli, Moot Court administrator.
Highlights of the Environmental Law Program at Pace

By Professor Robert J. Goldstein, Director of Environmental Programs

Since 1978, Pace University School of Law has provided internationally acclaimed education in environmental law. Our hallmark is a dedicated faculty who have been pioneers in establishing environmental law and who continue to serve as national and world-wide leaders. Our faculty have created such a rich curriculum and such acclaimed co-curriculum activities that our Program is consistently ranked among the top in the nation. No other law school today offers such a depth and breadth of environmental legal education. Students come to Pace from across the USA and internationally.

The Program is a mutually re-enforcing set of programs for legal education, research, and service in the field of environmental law. The program is focused on three areas of strength: pollution laws and enforcement; international and comparative environmental laws; and clinical and externship programs. The Environmental Program includes the following programs:

- **JD and Environmental Law Certificate Programs**
  The law school’s most highly recruited students choose Pace for its environmental program. With eleven full-time faculty members and upwards of 30 environmental law courses, Pace is a national and international leader in training law students for the practice of environmental law. The Environmental Law Certificate earned by 30 to 40 students annually, identifies them as extremely well-qualified to practice environmental law because of its rigorous requirements and standards.

- **Pace Environmental Litigation Clinic**
  Pace’s award-winning Clinic represents public interest environmental groups bringing citizen enforcement actions in state and federal courts on a variety of environmental and land use issues. The major client of the Clinic is the Riverkeeper, Inc. Through the Waterkeepers Alliance, Riverkeeper, Baykeeper, and Soundkeeper programs have been started around the globe, along with efforts to start law school-based clinics in places such as Brazil and Nicaragua.

- **Post-Graduate Programs in Environmental Law**
  The Master of Laws degree (LL.M.) in environmental law is an intense program that has immersed hundreds of post-graduate law students in the many specializations within environmental law. This program attracts students from all over the world, which further enriches this program. In 1996, Pace University began to offer the doctoral degree in Environmental Law. As the most advanced degree in the law, S.J.D. programs are authorized at only 22 of the 176 law schools accredited by the A.B.A. In the United States and Pace has one of only a few S.J.D. programs specializing in environmental law.

- **Pace Environmental Law Review (PELR)**
  Established in 1982, the PELR was one of the first scholarly journals established in the then new field of environmental law. Edited by JD candidates, PELR provides Pace students with a challenging opportunity to develop scholarly commentary and analysis of environmental law issues. PELR provides peer review of legal research alike by students, faculty or members of the bar and bench.

- **Pace Environmental Law Society (ELS)**
  Founded in 1978, Pace’s Environmental Law Society (ELS) is a student led organization committed to improving the environment through legislative action, citizen action forums, recycling programs, campus awareness activities, guest speakers and the annual Earth Day Celebration. ELS members attend local and regional conferences. ELS sponsors Brown-bag lunch seminars, Clearwater cruise, conducts annual Earth Day events including seminars and the Race for Space; sponsors lectures and events, fosters student activism for environmental projects. ELS is currently conducting an environmental audit of our campus.

- **Yale-Pace Joint Degree Program**
  A joint degree program has been initiated with the Yale University School of Forestry and Environmental Studies. Future joint degree programs are being explored with other fine institutions with graduate programs in environmental science and policy.

- **Lectures and Conferences**
  There are three regularly scheduled lectures sponsored by the Environmental Law Program including the Garrison Lecture, this year’s lecture featured Professor Zygmunt Plater, of Boston College Law School, and included a Roundtable of all former lecturers – a very distinguished group – discussing the future of environmental law; the Kerlin Lecture; and the Jay Lecture. Regular conferences include the Animals and the Law Conference, held annually in April, and the PELR Colloquium.

- **Environmentally Friendly: Journal of the Pace Center for Environmental Legal Studies**
  Now in its 5th year this award-winning highly regarded journal publishes shorter law review quality articles, news of the Pace Environmental Law program, student scholarship, etc. There are two versions of this publication, a print version and a web version. The Internet version was selected as the top “Key Resource for Environmental Legal Journals.” The print version has received subscriptions from many law school libraries, and private attorneys.

- **Pace-Brazil Programs**
  These programs include the: Pace/Brazil Universities Project: Under a grant from the Tinker Foundation, Pace Law School, in cooperation with other divisions of Pace University and with key universities in Brazil, is establishing programs to further environmental education in Brazil. Pace Seminars on Brazilian Environmental Law: Held in environmentally-sensitive regions of Brazil, these multi-day seminars are geared to working with local judges, prosecutors and lawyers on environmental protection issues. Seminars have been held in (1) Rondônia; (2) Sao Luis; and (3) Manaus, which was held in May-June 2001 in conjunction with a field-course of Pace Law students studying Comparative Brazilian Environmental Law.
Director of Environmental Programs Robert J. Goldstein was a virtual guest speaker at Mercer University Law School, delivering a lecture entitled Putting Environmental Law on the Map: A Spatial Approach to Environmental Law Using GIS, on their website located at: www.law.mercer.edu/elaw/speaker.htm.

Professor Goldstein has been named editor of Environmental Law and Ethics, a title in the series The International Library of Essays in Environmental Law (R.G. Lee, Ed.).


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Major Upcoming Events:

2002 Kerlin Lecture by Juan Mayr, Former Minister of the Environment of Colombia, September 25, 2002. This endowed lecture has been delivered in the past by Professor Carol Rose of Yale Law School and Professor Jacqueline Weaver of the University of Houston Law Center.


2003 Garrison Lecture by J. William Futrell, President of the Environmental Law Institute. Following the 2002 Lecture and Roundtable, the Garrison Lecture returns to its regular format, with a lecture by Bill Futrell, the founder and President of ELI.