Traditional Ecological Knowledge and Environmental Futures

Winona LaDuke[†]

Traditional ecological knowledge is the culturally and spiritually based way in which indigenous peoples relate to their ecosystems. This knowledge is founded on spiritual-cultural instructions from "time immemorial" and on generations of careful observation within an ecosystem of continuous residence. I believe that this knowledge represents the clearest empirically based system for resource management and ecosystem protection in North America, and I will argue that native societies' knowledge surpasses the scientific and social knowledge of the dominant society in its ability to provide information and a management style for environmental planning. Frankly, these native societies have existed as the only example of sustainable living in North America for more than 300 years.

This essay discusses the foundation of traditional ecological knowledge and traditional legal systems, the implications of colonialism on these systems, and the challenges faced by the environmental movement and native peoples in building a common appreciation for what is common ground—Anishinabeg Akiing—the people's land.

> *I had a fish net out in a lake and at first I was getting quite a few fish in it. But there was an otter in the lake and he was eating the fish in the net. After a while, fish stopped coming into the net. They knew there was a predator there. So similarly game know about the presence of hunters as well. The Cree say, "all creatures are watching you. They know everything you are doing. Animals are aware of your activities." In the past, animals talked to people. In a sense, there is still communication between animals and hunters. You can predict where the black bear is likely to den. Even though the black bear zigzigs before retreating into his den to hibernate, tries to shake you off his trail, you can still predict where he is likely to go to. When he approaches his den entrance, he makes tracks backwards, loses his tracks in the bush, and makes a long detour before coming into the den. The hunter tries to*

---

† Member of the Mississippi Band Anishinabe and Campaign Director of the White Earth Land Recovery Program, a reservation-based land and environmental advocacy and acquisition organization on the White Earth Reservation of Anishinabeg in northern Minnesota.

> *think what the bear is thinking. Their minds touch. The hunter and the bear have parallel knowledge, and they share that knowledge. So in a sense they communicate.*[1]

To be secure that one will be able to harvest enough involves more than skill; it also involves careful observation of the ecosystem and careful behavior determined by social values and cultural practices.

"Minobimaatisiiwin,"[2] or the "good life," is the basic objective of the Anishinabeg and Cree[3] people who have historically, and to this day, occupied a great portion of the north-central region of the North American continent. An alternative interpretation of the word is "continuous rebirth." This is how we traditionally understand the world and how indigenous societies have come to live within natural law. Two tenets are essential to this paradigm: cyclical thinking and reciprocal relations and responsibilities to the Earth and creation. Cyclical thinking, common to most indigenous or land-based cultures and value systems, is an understanding that the world (time, and all parts of the natural order—including the moon, the tides, women, lives, seasons, or age) flows in cycles. Within this understanding is a clear sense of birth and rebirth and a knowledge that what one does today will affect one in the future, on the return. A second concept, reciprocal relations, defines responsibilities and ways of relating between humans and the ecosystem. Simply stated, the resources of the economic system, whether they be wild rice or deer, are recognized as animate and, as such, gifts from the Creator. Within that context, one could not take life without a reciprocal offering, usually tobacco or some other recognition of the Anishinabeg's reliance on the Creator. There must always be this reciprocity. Additionally, assumed in the "code of ethics" is an understanding that "you take only what you need, and you leave the rest."

Implicit in the concept of Minobimaatisiiwin is a continuous inhabitation of place, an intimate understanding of the relationship between humans and the ecosystem, and the need to maintain that balance. These values and basic tenets of culture made it possible for the Cree, Ojibway, and many other indigenous peoples to maintain economic, political,

---

1. Fikret Berkes, *Environmental Philosophy of the Chisasibi Cree People of James Bay Brock University, in* TRADITIONAL KNOWLEDGE AND RENEWABLE RESOURCE MANAGEMENT IN NORTHERN REGIONS (Occasional Paper No. 23), at 7, 10 (Milton M.R. Freeman & Ludwig N. Carbyn, eds. 1988).

2. "Minobimaatisiiwin" can be literally translated as the "good life"—"mino" means "good" and "bimatissiiwin" mean "life" in the language of the Anishinaabeg people.

3. Anishinabeg, which means "the people," are also called the Ojibway or Chippewa, and are an Algonkinspeaking people who reside in the Great Lakes region. The Cree or Eeyou, which can be translated as "the people" in their language, are close relatives of the Anishinaabeg.

religious, and other institutions for generations in a manner that would today be characterized as sustainable.[4]

I. A MODEL

By its very nature, "development"—or, concomitantly, an "economic system" based on these ascribed Indigenous values—must be decentralized, self-reliant, and very closely based on the carrying capacity of that ecosystem. By example, the nature of northern indigenous economies has been a diversified mix of hunting, harvesting, and gardening, all utilizing a balance of human intervention or care, in accordance with these religious and cultural systems' reliance upon the wealth and generosity of nature. Because by their very nature indigenous cultures are not in an adversarial relationship with nature, this reliance is recognized as correct and positive.

> *A hunter always speaks as if the animals are in control of the hunt. The success of the hunt depends on the animals: the hunter is successful if the animal decides to make himself available. The hunters have no power over the game, animals have the last say as to whether they will be caught.* [5]

The Anishinabeg or Ojibway nation, for example, encompasses people and land within four Canadian provinces and five US states. This nation has a shared common culture, history, governance, language, and land base—the five indicators, according to international law,[6] of the existence of a nation of people. This nation historically and correctly functions within a decentralized economic and political system, with much of the governance left to local bands (like villages or counties) through clan and extended family systems. The vast natural wealth of this region and the resource management systems of the Anishinabeg have enabled people to prosper for many generations. In one study of Anishinabeg harvesting technologies and systems, a scientist noted:

> Economically, these family territories in the Timiskaming band were regulated in a very wise and interesting manner. The game was kept account of very closely, proprietors knowing about how abundant each kind of animal was. Hence they could regulate the killing so as not to deplete the stock. Beaver was made the object of the most careful "farming" an account being kept of the numbers of occupants old and young to each "cabin . . . ."[7]

---

4. For discussion, *see generally*, Colin Scott, *Knowledge Discussion Among Cree Hunters: Metaphors and Literal Understanding*, LXXV JOURNAL DE SOCIETE ANTHROPOLOGIC, 1989, at 193, 193-208.

5. Berkes, *supra* note 1, at 10.

6. Jason W. Clay, *What's a Nation?*, MOTHER JONES, Nov.–Dec. 1990, at 28.

7. Frank G. Speck, *The Family Hunting Band as the Basis of Algonkian Social Organization*, 17 AMERICAN ANTHROPOLOGIST, 289, 296 (1915).

The killing of game was regulated by each family. . . .[8]

The Anishinabeg employed a resource management system that used techniques for sustained yield. Such systems show a high degree of unification of conception and execution (possible because the "scientist" is the "resource manager"). There has only been limited imitation of this system by the scientific community.[9]

This system has allowed traditional land-based economies to prosper. Conceptually, the system provides for both domestic production and production for exchange or export. Hence, whether the resource is wild rice or white fish, the extended family as a production unit harvests within a social and resource management code that insures sustained yield. Traditional management practices have often been dismissed by North American settlers as useless in the current circumstances of more significant populations. However, it is important to note that previous North American indigenous populations were substantially higher than they are now. This indicates that these management practices were applied in greater population densities, an argument which is useful in countering the perceptions that all Native American practices have occurred with very low populations. I believe there is a more substantial question meriting discussion: Can North American society craft the social fabric to secure a traditional management practice, based on consensual understanding and a collective process?

II. COLONIALISM AND UNDERDEVELOPMENT

The governance of this land by traditional ecological knowledge has been adversely affected by genocide, colonialism, and subsequent circumstances that need to be considered in the current dialogue on North American resource management, the role of the environmental movement, and indigenous peoples. The holocaust of America is unmatched on a world scale, and its aftermath caused the disruption necessary to unseat many of our indigenous economic and governmental systems. There can be no accurate estimate of the number of people killed since the invasion, but one estimate provides for 112,554,000 indigenous people in the western hemisphere in 1492 and an estimated 28,554,000 in 1980. Needless to say, this is a significant depopulation.[10] This intentional and unintentional genocide facilitated a subsequent process of colonialism, which served to

---

8. *See generally, id.* at 289–305.

9. Peter J. Usher, *Property Rights: The Basis of Wildlife Management, in* NATIONAL AND REGIONAL INTERESTS IN THE NORTH 389, 408–09 (1984).

10. Robert Venables, *The Cost of Columbus: Was There a Holocaust?*, NORTHEAST INDIAN Q., Fall 1990, at 29, 30 n.7.

establish a new set of relations between indigenous nations and colonial or "settler" nations in the Americas.

Three basic concepts govern relations between colonial "settlers" and indigenous nations. Colonialism has been extended through a set of "center periphery relations" in which the center has expanded through: (1) the cultural practice spreading Christianity and, later, Western science and other forms of Western thought; (2) the socioeconomic practice of capitalism; and (3) the military–political practice of colonialism.[11]

These practices have resulted in the establishment of a set of relations between indigenous economies and peoples and the North American colonial economy that are characterized by dependency and underdevelopment. Underdevelopment—or, more accurately, "underdeveloping," because it is an ongoing practice—is the process by which the economy both loses wealth and undergoes the structural transformation which accentuates and institutionalizes this process.[12] This process, underway for at least the past 200 years, is characterized by the appropriation of land and resources from indigenous nations for the purpose of "developing" the US and Canadian economies and, subsequently, the "underdeveloping" of indigenous economies. The resulting loss of wealth (closely related to loss of control over traditional territories) has created a situation in which most indigenous nations are forced to live in circumstances of material poverty. It is no coincidence that Native Americans and Native Hawaiians (as well as First Nations in Canada) are the poorest people both in the United States and on the continent as a whole. As a consequence, indigenous peoples are subjected to an array of socioeconomic and health problems that are a direct consequence of poverty.[13]

In this process of colonialism, and later marginalization, indigenous nations become peripheral to the colonial economy and eventually are involved in a set of relations characterized by dependency. As Latin American scholar Theotonio Dos Santos notes: "By dependence we mean a situation in which the economy of certain countries is conditioned by the development and expansion of another economy to which the former is subjected."[14] These circumstances—and indeed, the forced underdevelopment of sustainable indigenous economic systems for the purpose of

---

11. John Galtung, *Self Reliance: Concepts, Practice and Rationale*, *in* SELF RELIANCE: A STATEGY FOR DEVELOPMENT 19, 20 (Johan Galtung et al. eds., Bogle-L'Ouverture Publications, Ltd. 1980).

12. SAMIR AMIN, UNEQUAL DEVELOPMENT: AN ESSAY ON THE SOCIAL FORMATIONS OF PERIPHERAL CAPITALISM 201–03 (Brian Pearce, trans., Monthly Review Press 1976).

13. AMERICAN INDIAN POLICY REVIEW COMM., FINAL REPORT SUBMITTED TO CONGRESS MAY 17, 1977 (Comm. Print 1977).

14. Theotonio Dos Santos, *The Structure of Dependence*, *in* READINGS IN U.S. IMPERIALISM 225, 226 n.1 (K.T. Fann & Donald C. Hodges eds., Porter Sargent 1971).

colonial exploitation of land and resources—are an essential backdrop for any discussion of existing environmental circumstances in the North American community and of any discussion of sustainable development in a North American context. Perhaps most alarming is the understanding that even today this process continues, because a vast portion of the remaining natural resources on the North American continent are still under native lands or, as in the case of the disposal of toxic wastes on Indian reservations, the residual structures of colonialism make native communities focal points for dumping the excrement of industrial society.

III. INDIGENOUS NATIONS TODAY

On a worldwide scale, there are more than 5000 nations and just over 170 states. "Nations" are defined under international law as those in possession of a common language, land base, history, culture and territory, while "states" are usually recognized and seated at the United Nations.[15] North America similarly contains a series of nations, known as "First Nations" in Canada and, with few exceptions, denigrated in the United States by the term "tribes." Demographically, indigenous nations represent the majority population north of the 55th Parallel in Canada (the 50th Parallel in the eastern provinces) and occupy approximately two-thirds of the Canadian landmass.

Although the United States has ten times the population it had during colonial times, Indian people do not represent the majority, except in a few areas, particularly the "Four Corners" region of the United States (so named because four states—Arizona, Utah, New Mexico, and Colorado—all meet at one point) where Ute, Apache, Navajo, and Pueblo people reside. However, inside our reservations, which occupy approximately four percent of our original land base in the United States, Indian people remain the majority population.

In our territories and our communities a mix of old and new coexist sometimes in relative harmony and at other times, in a violent disruption of the traditional way of life. In terms of economic and land tenure systems, the material basis for relating to the ecosystem, most indigenous communities are a melange of colonial and traditional structures and systems. Although US or Canadian laws may restrict and allocate resources and land on reservations (or aboriginal territory), the indigenous practice of "usufruct rights" is often still maintained and, with it, traditional economic and regulatory institutions like the trapline, "rice boss," and family hunting, grazing (for peoples who have livestock), or harvesting territories.

---

15. Clay, *supra* note 6.

These subsistence lifestyles continue to provide a significant source of wealth for domestic economies on the reservation, whether for nutritional consumption or for household use, as in the case of firewood. They also, in many cases, provide the essential ingredients of foreign exchange; wild rice, furs, woven rugs, and silverwork. These native economic and land tenure systems, which are specific to each region, are largely invisible to US and Canadian government agencies' economic analysts who consistently point to native "unemployment" with no recognition of the traditional economy. The Bureau of Indian Affairs labor statistics are categorized by sector, as is most employment data available from the U.S. Census Bureau.

In many northern communities, over half of local food and a significant amount of income is garnered from this traditional economic system. In other cases, for instance on the Northern Cheyenne Reservation in Montana, over ninety percent of the land is held by Cheyenne and is used primarily for ranching. Although they do not represent formal "wage work" in the industrial system, these land-based economies are essential to native communities. The lack of recognition for indigenous economic systems, although it has a long history in the North American colonial view of native peoples, is particularly frustrating in terms of the current debate over development options.

Resource extraction plans or energy mega projects proposed for indigenous lands do not consider the current significance of these economic systems nor their value for the future, as demonstrating what remains of sustainable ways of living in North America. A direct consequence is that environmentally destructive development programs ensue, many times foreclosing the opportunity to continue the lower-scale, intergenerational economic practices that had been underway in the native community.

IV. INDIGENOUS ENVIRONMENTAL ISSUES

The conflict between two paradigms—industrial thinking and indigenous thinking—becomes central to the North American and, indeed to the worldwide, environmental and economic crisis. As native communities struggle to survive, issues of sovereignty and control over natural resources become central to North American resource politics and the challenge for North Americans of conscience. Consider these facts:

- More than 50 million indigenous peoples inhabit the world's remaining rain forests.

- More than 1 million indigenous people will be relocated to allow for the development of hydroelectric dam projects in the next decade.

- The United States has detonated all its nuclear weapons in the lands of indigenous people, more than 600 of those tests within land legally belonging to the Shoshone nation.

- One-half of all uranium resources within the borders of the United States lay under native reservations. In 1974, Indians produced 100 percent of all federally controlled uranium.[16]

- One-third of all low-sulfur coal in the western United States is on Indian land, with four of the ten largest coal strip mines in these same areas.[17]

- Over 40 billion board feet of timber stands on Indian reservations—trees now coveted by US timber interests.[18]

- Fifteen of the eighteen recipients of phase one nuclear waste research grants, so-called Monitored Retrievable Nuclear Storage sites, are Indian communities.

- The largest hydroelectric project on the continent, the James Bay Project, is on Cree and Inuit lands in northern Canada.[19]

For many indigenous peoples, the reality is as sociologist Ivan Illich has suggested: development practices are in fact a war on subsistence.

V. MANITOBA HYDRO: A WAR ON SUBSISTENCE

Hydroelectric dams in the north illustrate the battle between the indigenous and industrial the world. The James Bay dams of northern Quebec continue to be a front line environmental struggle, as the pending destruction of the "Amazon of the North" rallies environmentalists and Crees in an ongoing battle with Quebec Hydro.[20] For the past five years, American environmentalists have joined with Cree to stop American export contracts (New York Power Authority, Commonwealth Edison, etc.) and build a coalition which successfully stopped at least one contract. This case is far from isolated; there are dams in Canada west of Quebec that are equally devastating. In the early 1970s, a series of seven dams was built on the Nelson and Churchill River systems. The dams spin out 2,600

---

16. Winona LaDuke, *Native America: The Economics of Radioactive Colonialism*, REVIEW OF RADICAL POLITICAL ECONOMICS, Fall 1983, at 9, 10.

17. *Id.*

18. Interview with Marshall Cutsforth, Bureau of Indian Affairs Office of Trust Responsibility (August 10, 1993).

19. *See* Boyce Richardson, STRANGERS DEVOUR THE LAND (1976).

20. Richardson, *supra* note 18.

megawatts of power. In total, another eleven generating stations are proposed, to spin out an additional 6,000 megawatts.[21]

The Churchill and Nelson River systems drain one of the largest watersheds in North America. They extend from the Rockies in the west to the Mississippi and Lake Superior drainage basin in the south. These rivers ultimately flow into Hudson Bay, the larger bay into which James Bay drains.

One control dam at Missi Falls on the Churchill River illustrates the project's intent. The dam cut the flow from an average of 1,050 cubic meters per second to an average of 150 meters per second and turned all the water back into South Indian Lake.[22]

The Manitoba Hydor dams' location, in the midst of permafrost, causes additional problems. Dr. Robert Newbury of the Freshwater Institute notes: "What made the venture most critical . . . was that it was the first large river diversion and take impoundment in widespread permafrost. When the project was planned, the implications of that were suspected but unproven."[23] The development has inadvertently been an ecological experiment. Because the temperature of the water always exceeds the temperature of the soil, the water causes a constant "melting away" of the shoreline. The annual rate of "shoreline retreat," as it is aptly called, is currently 130 to 140 feet per year. According to the Winnipeg–based Freshwater Institute, it may be 80 years or more before shoreline retreat subsides.[24] This silting—which is another term for shoreline retreat—chokes the reservoirs, causes widespread mercury contamination and the destruction of wildlife.

There is a story told by northern moose hunters about of two hunters on South Indian Lake. They scan the shore for a moose. After much searching, they finally happen upon one. It was a moose, alright, but sinking up to its neck in silt.[25]

It is such ecosystem devastation that caused more than ninety-eight percent of the waterfowl to disappear from the South Indian Lake region in northern Manitoba, according to the Freshwater Institute. Humans have been affected, too. Health surveys demonstrate that one out of every six

---

21. Larry Krotz, *Dammed and Diverted*, CANDIAN GEOGRAPHIC, Feb/Mar. 1991, at 36, 38.

22. *Id.* at 39.

23. *Id.* at 41.

24. *Id.*

25. Information derived from conversation between Alan Ross of Norway House and Randy Kapashesit of Moose Factory, Ontario.

people on the Nelson River suffer from mercury contamination.[26] The dams have also created widespread economic and social disruption.

Two decades ago, seventy-five percent of the food came from the land, as did the majority of local income. Today, that is impossible. Very little comes from the land, and people are forced to buy food at the store, often at prices ten times that in the south.

At the Cree village of Moose Lake, for instance, two-thirds of their land base was flooded and 634 people were moved into a housing project.

Jim Tobacco, Moose Lake Band, said 90 percent of the adults were estimated to have substance abuse problems after the flooding. "There is a very hostile attitude in the community," he laments. "Our young people are always beating each other up. My people don't know who the hell they are. They live month to month on welfare. Our way of life and resources have been destroyed. We were promised benefits from the Hydro Project. Today, we are poor and Manitoba Hydro is rich."

Elsewhere, suicide epidemics plague flooded communities. "There's just a feeling they're being exploited, they're being used," said Alan Ross, Chief of Norway House, another flooded community. His small village had fifteen suicide attempts a month during the 1980s.[27] At Cross Lake, twenty suicides occurred during an eight-month period—ten times the provincial average.[28]

Manitoba government officials are quick to point to the recent "compensation package" worth tens of millions of dollars to these northern villages. But in the face of a near doubling of hydroelectric capacity in the north—from seven dams to eleven, increasing the rate of devastation to the ecosystem and the community—many natives have come to wonder if there is any "just compensation" for the destruction of their way of life.

Manitoba Hydro's impact on northern Cree and Ojibway communities is indicative of the devastation being wrought in Indian Country by development projects. This example also illustrates the complexity of indigenous environmental issues in the larger context of a North American environmental movement and the depth of the problems we collectively face in our strategies. Specifically, I have found four consistent facts. First, Cree and Ojibway economic, cultural, and ecological knowledge and systems are largely dismissed as inevitably outdated and lacking in value in

---

26. Krotz, *supra* note 21, at 42.

27. GEOFFRY YORK, THE DISPOSSESSED: LIFE AND DEATH IN NATIVE CANADA 96–97 (1989).

28. *Id.* at 96.

comparison to the "greater good" associated with hydroelectric dams. The lack of valuation of traditional economies augments the underrepresentation of native ways of life in cost/benefit equations. Second, the inevitable cultural and social devestation wrought by such projects is soft-peddled by government and, often, by environmentalists, who have become accustomed to viewing "the Natives as steeped with social and health problems and subsequently have become numb to concern." Third, the Manitoba Hydro dams, like the Hydro Quebec dams, are a result of shortsighted development programs (based on continued increases in electrical consumption) and an often compromising environmental movement that trades nuclear power plants in for hydroelectric dams. Finally, the single largest contract for Manitoba Hydro dams is with the United States (Northern States Power), illustrating US environmentalists' ability to subscribe to an "out of sight/out of mind" allowance that creates "sacrifice areas" in communities like Moose Lake and in ecosystems like James and Hudson Bay.

VI. STRATEGIC ERRORS IN THE ENVIRONMENTAL MOVEMENT

The mainstream environmental movement, one that journalist Mark Dowie suggests is "courting irrelevantism," has historically played into the colonial mind-set by denying the existence of indigenous ecological knowledge (except perchance quoting a few words of Chief Seattle) and the significance of this knowledge in sustainable thinking.

There are numerous examples of the alleged superior knowledge of (usually) urban-based environmentalists over the knowledge of ecosystems inherited by indigenous peoples. Just a few:

> • On a reservation in northern Minnesota, White Earth, The Nature Conservancy purchased approximately 400 acres of land (to preserve "indigenous prairie") from a private, nonabsentee landholder and turned it over to the state.
>
> • A pending lawsuit in New Mexico state court, Ray Graham III v. Sierra Club Foundation, is based on Graham's donation of $100,000 to the Sierra Club Foundation to purchase land in northern New Mexico for a Chicano community sheep ranching project. (Land-based Chicanos subscribe to similar value systems as indigenous people and a share good portion of common bloodlines.) The Sierra Club Foundation is alleged to have purchased other properties instead.[29]

29. Interview with Mark Dowie, Editor-at-Large of InterNation.

> • As a result of successful organizing work by Greenpeace and animal rights groups, the European Economic Community (EEC) placed a ban on the sale of white coat seal pup pelts. In 1983 the market for pelts of mature seals collapsed as well. In eighteen of twenty Inuit communities in the Northwest Territories, the annual revenue from the sale of sealskin pelts dropped by approximately sixty percent.[30]
>
> • The community of Broughton Island saw its collective income drop from a total of $92,099 in 1981–1982 to $13,504 in 1983–1984. The Inuit of Pangnirtung on Baffin Island made only $42,146 in 1983–1984 in comparison with the $200,714 they had made two years earlier. The income for Resolute, in the High Arctic, fell from $54,841 to $2,383 during the same period. Since the EEC ban there has been a significant increase in social problems in the communities, which until that time had been largely self-sufficient.[31] When asked by a Canadian government committee to report on the impact of the loss of the market for sealskins in Inuit communities, Ms. Rhoda Inusuk, president of the Inuit Tapirisat of Canada replied:
>
> *"One of the disasters that has happened as a result is that of youth suicide. We have a very high rate of suicide. The loss is due to the animal rights group. . . . We have the youth problems, drug and alcohol abuse, violence. There is very little employment and when you are hit with something like that, you are bound to see these problems come up as result of that."*
>
> • The Great Whale proposed site of the James Bay II Dam is another excellent example: *"What are we conserving the beluga for?" a Great Whale hunter wonders, noting the community imposed limit of ten, "So that the power project can kill them all later?"*[32]

Although these instances are not the whole story of the environmental movement in Indian Country, they represent problems that reoccur consistently because, I believe, underlying racism exists in the basically white-dominated environmental organizations. This "environmental racism" in the environmental movement is also indicated by the inability of mainstream organizations to recognize, for instance, the relationship between ecologically destructive development projects (or culturally altering environmental initiatives, like the seal campaign) and cultural and physical devastation and genocide, such as is seen in the Inuit and Cree examples. These so-called "social justice issues" must be recognized as a part of an environmental agenda—for if there is no one left who understands how to care for an ecosystem in a sustainable, practiced manner, it will not be cared for.

---

30. Winona LaDuke, Briefing Paper for the Greenpeace USA Board of Directors on Sovereignty and Native People.

31. *Id.*

32. *Id.*

Finally, the culturally limited worldview of many urban environmentalists serves to drive a wedge between native and settler. So long as the issue of consumption is not addressed, someone's land and lives will be traded for someone else's cappuccino machine. Therefore, arguments made by individuals who support Hydro Quebec's James Bays dams as an alternative to nuclear power means that my children are not to have land or a cultural inheritance so that their grandchildren may retain a level of consumption they feel they deserve.[33]

The challenge that I believe faces the North American environmental movement is to form a meaningful partnership with indigenous communities and peoples. Only then can we address the common issues of environmental degradation and the clear need for a new operating paradigm from which to build a natural resources management system or, more appropriately, a way of managing our relations with the land.

VII. NATIVE SUSTAINABILITY INTO THE TWENTY-FIRST CENTURY

Native people are on the front lines of resistance to many ecologically devastating projects. Whether it is the Cree of James Bay, the Havasupai of the Grand Canyon opposing uranium mining, the Columbia River fishing peoples opposing nuclear contamination at Hanford, the Point Hope Inupiat trying to force the federal government to clean up a nuclear testing site on the North Slope, or the Anishinabeg of northern Wisconsin trying to stop a copper strip mine, we continue vigilant struggles for land, culture, and future generations.

Native peoples are also engaged in proactive struggles to regain control over ecosystems and ways of living. The following are examples of the adaptability of indigenous thinking to community development projects.

A. Zuni

For the past 1,500 years, the Zuni people have farmed in an area that they currently occupy—the Zuni Reservation in central New Mexico. They are famous for their skill and knowledge of farming under difficult conditions. Floodwater irrigation of folk crop varieties in this dry area has been the core of their farming.

---

33. Information derived from the 1992 New England Environmental Conference, Tufts University Filene Center, March 19-21, 1992.

During the past several generations, however, there has been a reduction both in farming and in area farmed from 1,012,000 acres in the mid-1800s to about 1,000 acres today. However, there is now renewed interest and commitment by the Zuni people in agriculture. The Zuni Sustainable Agriculture Project is their response, which they place in the context of the crisis of American "modern" industrial agriculture.[34]

The Zuni note, with some remorse, that in the United States, salt buildup is lowering yields on some thirty percent of irrigated land, and about twenty percent of irrigated land is watered by pumping out groundwater at a rate exceeding its replacement. About seven tons of US cropland topsoil per acre are being lost to wind and water erosion, and approximately 500,000 tons of 600 different types of pesticides are applied annually in the United States. The cumulative impact of this type of agriculture is—from the Zuni, and other indigenous people's, viewpoint—unsustainable.[35]

The intent of the Zuni project is to restore community participation in and control over food production and agriculture through a diversified program of education, research/data collection and analysis, as well as actual farming and technical assistance. The projects are integrated. One example is peach tree orchard restoration and revitalization, which is based on a Zuni system called *dabathishna*, or "field rooting".[36]

Another aspect of the Zuni project is the managing of rainfall runoff into the fields. This project is called *kwa'k'ya,di deyatchinanne*, often translated as "dry farming" in English. At Zuni, however, this English term is misleading. In fact, farmers really do irrigate these fields, but usually with rainfall runoff from surrounding areas or by capturing water from arroyos.

The project is part of the International Union for Conservation of Nature, which recently held an international meeting at Zuni.

B. Anishinabeg Resource Management Initiatives

In the Great Lakes region, a number of Anishinabeg communities have undertaken restorative programs for traditional ecological knowledge and the recovery of control over land on which people live.

---

34. David Cleveland and Daniela Soleri, *The Zuni Sustainable Agriculture Project*, ZUNI FARMING FOR TODAY & TOMORROW (Occasional Newletter), Spring 1993, at 1.

35. Zuni Sustainable Agriculture Project and the Nutria Irrigation Unit, *The Nutria Project*, ZUNI FARMING FOR TODAY & TOMORROW (Occasional Newletter), Spring 1993, at 1, 4.

36. Daniela Soleri with Lygatie Laate, *Peach Tree Care and Propogation: Building on Traditional Knowledge*, ZUNI FARMING FOR TODAY & TOMORROW (Occasional Newletter), Summer 1993, at 1, 2.

On the White Earth reservation in northern Minnesota, the White Earth Land Recovery Project seeks to recover control over more than one-third of all reservation lands in the next two decades. At least that much is held by government agencies, including 21,000 acres designated as a National Wildlife Refuge, which the people seek to have returned. The White Earth people will seek to restore traditional resource management schemes to those parcels they recover.

To the south of White Earth, the Mille Lacs Band of Anishinabeg is litigating against the State of Minnesota, seeking to secure harvesting access to lands within the 1847 treaty boundary that were unceded by the band. These traditional people have been restricted to only 4,000 acres of land, of which only 1,500 are secure for harvesting. The remainder is greatly diminished in wealth by environmental degradation and the encroachment of non-Indian settlers and tourist industries.

The Mille Lacs Commissioner of Natural Resources, Don Wedll, documented the subsistence requirements for the band members' future to establish the amount of territory required by band members to ensure their sustenance. This approach underscores their political strategy, which, in turn, is based on cultural values and long-term self-sufficiency brought about by careful stewardship.

> The economic revenue from natural resources is based on the ability to harvest surplus resources for sale or trade. The using of Natural Resources for economic gains will be secondary to the gathering for feed or herbs. Through [sic] traditionally the Chippewa from Mille Lacs [Anishinabeg] have traded and sold harvestable natural resource[s], Mille Lacs Reservation will insure [sic] the protection of species to any economic gain from our natural resources. The economic gains will be limited to a moderate harvesting and managed so as to insure [sic] the rights of all Band members to harvest and gather food and/or herbs. The economic benefits from natural resources harvesting will be limited to family units and not individual members. It will also be limited to an income guideline.[37]

In northern Wisconsin, similar approaches to securing adequate food, clothing, shelter, and sustenance are forwarded by Anishinabeg bands within the 1847 treaty area. For example, a comanagement plan drafted by native activists Walt Bresette (Anishinaabe) and James Yellowbank (Winnebago) speaks to proposals for indigenous values and the common sense of rural communities trying to survive.

Similarly, the Wabigon Lake Wild Rice Management Program has been advanced by the Anishinabeg of southern Ontario. While Canadian

---

37. *See* Don Wedll, *Mille Lacs Band of Chippewa Indians: Basic Existence Requirements for Harvesting of Natural Resources*, TRIBAL DOCUMENT (1986).

government legislation has demarked wild rice harvesting zones in the area according to resource management districts, the Wabigon Lake people have noted that their traditional territory extends into two districts and that the Canadian government management proposals are not based on traditional resource management practices of the Anishinabeg. The Wabigon Lake Anishinabeg have responded with their own demarcation and regulation program, including provisions for traditional (canoe) harvesting followed by mechanical (airboat) harvesting. Their organically certified wild rice (by the Organic Crop Improvement Association) is marketed internationally, returning substantial revenues to their community and illustrating the potential of using traditional economies and value systems as the foundation for community control of economy and destiny. They have also developed Wabuskang Wildfruits, which hopes to continue marketing 10,000 jars of organically certified blueberry spread annually.[38]

Other examples in the region abound, but perhaps none is so striking as the Menominee Forest Enterprises in northern Wisconsin. This reservation contains the most age and species diversified stands in the region and retains the same amount of timber today as a century ago, all due to indigenous forestry management practices paired with careful harvesting techniques. The Menominee forest is the only "green cross certified" forest in North America.

These examples illustrate the application of traditional ecological knowledge within the cultural areas of those peoples from whom the knowledge originates. Sustainable practice with continuous harvest is critical for the environmental movement to recognize; it is a practice in which humans are a part of the land and of ecosystems. Equally important is applying this knowledge within the cultural fabric of cohesive societies—something that North Americans (including environmentalists) have yet to attain—and linking sustainable practice and governance over territory. There will not be the former without the latter. Native peoples must be accorded the proprietary interest in those lands that sustain their communities; that is the only way that sustainability will be insured. However, this point remains a divisive one in terms of the North American environmental movement.

---

38. *See* Winona LaDuke, *Wabuskang Women's Marketing Collective*, INDIGENOUS WOMAN, Vol. 1, No. 3, at 48.

VIII. COMMON GROUND/COMMON ADVERSARIES AND COMMON SOLUTIONS

A more effective goal for all of us is to get serious about becoming "native to our place." As a culture, we still operate more in the conquering spirit of Columbus and Coronado, than in that of the Natives we conquered. To be native to this place would not mean the end of science or the end or management of our landscape. . . .

Embrace the arrangements that have shaken down in the long evolutionary process and try to mimic them . . . ever mindful that human cleverness must remain subordinate to nature's wisdom.[39]

Wes Jackson, Salina, Kansas

It is time that indigenous peoples' knowledge, experience, ways of living, and struggles to survive are taken seriously by the environmental movement.

Environmentalists who seek principally to defend ecosystems from devastation by hydro dams, clear-cutting, development, or mining have much to gain from an alliance with native people. We have common adversaries, whether they be corporations or governments. For instance, the WISE USE Movement includes organizations like Protect American Rights and Resources (PARR), Equal Rights for Everyone (ERRA), SPAWN, and other groups whose central purpose is to strip native peoples of their rights to govern lands and to secure culture, language, and religion.[40]

Knowing your allies is critically important, as is sharing the power to determine larger political agendas. It is possible that we may have common solutions. An interesting discussion is now underway over the central lands of North America, which illustrates the tensions between indigenous peoples and North Americans or environmentalists.

In the center of the United States, stretching across the Great Plains, is a vast expanse of reservation land—approximately 50 million acres of the most significant native landholdings in the United States. That same region contains a much larger area of indigenous lands—lands reserved under treaties like the 1868 Fort Laramie Treaty with the Lakota nation and the 1853 Ruby Valley Treaty with the Western Shoshone nation. These treaty lands are, in effect, illegally occupied by the United States. These

---

39. Wes Jackson, *Listen to the Land*, THE AMICUS J., Spring 1993, at 32, 33–34.

40. *See* Rudolph Rÿser, *Anti Indian Movement on the Tribal Frontier*, Center for World Indigenous Studies (Occasional Paper No. 16), June 1992, at 3, 3–5.

lands are the subject of discussion in two separate agendas. The *Great Plains Initiative* discusses water allocations in that overdrawn region and the *Buffalo Commons* discusses the future of land tenure within the region. In the case of the Great Plains Initiative (a process underway largely between state and federal governments and environmental groups), native people have rarely been at the table. Proposals for water allocations in the region have yet to address the 50 million acres of reservation lands that have not been allowed "a drink." Instead, these communities have been left "high and dry" by decades of ill-conceived water diversion projects (including Oahe, Garrison, Kerr, and Lake Powell). Native peoples retain legal rights to water their lands and need to be included in the dialogue, something that should be demanded by the environmental movement if it is interested in preserving sustainable cultures. The Mini-Sosi Alliance, for instance, a coalition of Northern Plains indigenous governments created to discuss water issues, is demanding this recognition.

Frank and Debra Popper of Rutgers University put forward the Buffalo Commons initiative in the early 1980s, offering other possibilities. The Poppers undertook a comprehensive study of economics and land-use patterns in the region. They discovered that 110 counties—a quarter of all counties in the western portions of the states of North and South Dakota, Nebraska, Kansas, Oklahoma, and Texas, as well as eastern Montana, Wyoming, Colorado, and New Mexico—had been on shaky financial ground since, essentially, the moment they were expropriated from indigenous peoples. (These counties and those who inhabit them, are also, not surprisingly, engaged in an agriculture policy that, in many cases, is ecologically unsound and which, for instance, results in the seven tons of topsoil loss annually per acre, a rate that is occurring in most of this region.)

This region of approximately 140,000 square miles of prairie is inhabited by approximately 400,000 Euro-Americans in financially stricken counties that attempt to support school districts, road maintenance, fire departments, and social services in the face of dropping populations and subsequent decreases in revenues. The local governments have not been successful in financing all these programs, and most counties are nearly bankrupt. These counties are frequently located not only near Indian reservations but also adjoining a great deal of western federal lands.

The Poppers proposed an interesting idea, which indigenous scholar Ward Churchill takes a step further. The Poppers suggest that the government should cut its proverbial losses and buy out the individual landholdings. The final result, in the Poppers' proposal, would be a commonly held land—the "Buffalo Commons," on which ecological restoration should occur.

Churchill proposes that ecological and cultural restoration should occur, largely by expanding this area to the Indian reservations, the national forests and parklands, and the now-redundant military reservations like the Ellsworth Air Force Base and other similar areas under the Strategic Air Command. These lands are within the unceded territory of the Lakota, Pawnee, Arikara, Hidatsa, Mandan, Crow, Shoshone, Assiniboine, Cheyenne, and Arapaho. Such a proposal would cause relatively little dislocation of non-Indians (thousands annually drain out of these counties in any case) and would provide a fertile area for the recovery of indigenous species and peoples.[41]

The Indigenous Commons region and areas like the Northern Rockies Ecosystem (occupied by peoples such as the Blackfeet, Salish, Kootenai, and Nez Perce), the Nunavat (the newly created Inuit territory in what was formerly the Northwest Territories—an area the size of the Indian subcontinent), James and Hudson Bay, and regions like Anishinabeg Akiing, represent the beginnings of a political decolonization—the dismantling of settler-imposed political and economic institutions—of the continent. Such regions also represent the beginning of a new paradigm or, perhaps, a recovered indigenous paradigm, which has immense value in the context of the North American environmental movement.

IX. THE NEW PARADIGM: STRUCTURAL CHANGE

Long-term solutions are implicitly necessary to sustain the land and resolve the arguments about the land. Cultural diversity is as critical as biological diversity and must be manifested in our methods of relating to the land. Resource and so-called "common property" management policies can neither be conceived nor implemented without reference to the system of property rights, which is, in turn, determined by the fundamental political arrangement of any society. Resource management systems that exist in North American law today rely on a system of property rights that emulate the social values of Euro-American society and have no reference to indigenous values and property rights. As a result, I argue that these systems have no relation to this land.

Property rights, in traditional native society, can be said to rest with the group, the collective. Each band or co-residential group traditionally has maintained the rights to use territory by virtue of occupancy. The connection between the land and the group lies in the ceremony, spiritual

---

41. WARD CHURCHILL, STRUGGLE FOR THE LAND: INDIGENOUS RESISTANCE TO GENOCIDE, ECOCIDE AND EXPROPRIATION IN CONTEMPORARY NORTH AMERICA 421-433 (1993).

instruction, naming, travel knowledge, and intergenerational residence. Traditionally, usufruct rights are allocated to the whole, usually based on extended family/clan allocations, and the property right remains with the collective. To the extent that indigenous peoples have articulated their relationship to the land, they see themselves as belonging to it rather than it to them. Anishinabeg Akiing and Dineh Bii Kaya, both signifying "the people's land," articulate the same principle value or set of values.

Those values deserve a place at the environmental table and in its dialogue. In the consistent dismissal of both native values and property rights in a North American political context, even in the context of the "left" and the environmental movement, there remains a subliminal fear of the indigenous—a residue of colonialism and the colonial mind.

"Management" is a prerogative that flows from the system of property every system of resource management is based on certain assumptions, frequently unstated, that social organization, political authority and property rights, all of which are closely interrelated. As no two societies or cultures are identical in these respects, there can be no such thing as a scientifically or technically neutral management regime that is equally applicable and acceptable to both. Consequently, where two social systems share an interest in the same resource, there must be some accomodation in the sphere of property, as in the system of management, unless one is to be completely obliterated by the other.[42]

We have inherited a dominant system of property and natural resource management that flows from the European industrial mind. Common property, or the perception of common property, governs a substantial portion of land within the United States. The federal government is, after all, the single largest landholder. "Common property" is therefore "state property." This is not a result, however, as many legal scholars will argue, of a legal process, for within each of a series of bounded territories, there is an organized society that has the effective right and ability to use and to manage fish and wildlife while those resources are available. Fish and wildlife are, in effect, communal property. They became state property through various forms of expropriation in the transfer of title that took place across North America, with or without the compliance or agreement of native peoples, and often against their will. Our prevailing conception of common property as state property was imposed not on a lawless, free-for-all situation in which no one owned or had responsibility for anything, but rather on a functions system or communal property that is, in fact managed by the occupying group.[43]

---

42. *See* Usher, *supra* note 9.
43. *Id.*

It is the legacy of colonialism that native peoples' access to resources is seen by many as a social policy issue rather than a fundamental property right issue; this situation continues to be replicated by the North American environmental movement. The environmental movement, therefore, exceeds the charge of contributing to environmental racism and is charged more appropriately with environmental colonialism.

The work underway in communities like Zuni, White Earth, and Menominee is clear evidence of our continuing ability to apply our intellectual and scientific traditions to our ecosystems and harvesting areas. The broader proposals, such as the Indigenous Buffalo Commons and comanagement discussed here and elsewhere, are a challenge to the North American environmental movement.

It is now time for North Americans to work on decolonization. This process must be undertaken with tangible support for indigenous struggles to protect land, territories, and ecosystems. Organizations such as Greenpeace have adopted a policy to recognize indigenous peoples' rights to self-determination and sovereignty and to include that policy in the campaigning framework, whether by supporting native campaigns, by hiring native people, or simply by working cooperatively with native communities on common ground issues. Other alliances, like Sierra Club's and National Resources Defense Council's opposition of James Bay hydroelectric, also show evidence of past cooperation and the promise of more. Proposals like the Northern Rockies Ecosystem Protection Act, which have included native people in their formulation, are of extreme political significance, particularly because those are native lands, sacred areas, and *awessiag* (animals) that environmentalists are discussing. We need to encourage the practice of cooperation, and never relinquish the goal of changing the paradigm.

Decolonization also means support for turning back military, political, economic, cultural, and religious imperialism in North America as a way of securing traditional ways of living on the land and the cultural framework on which they lie. Whether decolonization efforts take place through support of native free exercise of religion legislation or native language restoration, the broader context has imminent value in the specifics of living within the ecosystems.

Finally, we need to focus on enhancing, recovering, and strengthening our traditional ecological knowledge. This needs to occur at the local level of communities, bands, and families as well at the larger level of indigenous nations. In addition, native organizations—such as the Council of Energy Resource Tribes, American Indian Science and Engineering Society, Native American Rights Fund, Indian Law Resource Center,

National Congress of American Indians, Native American Fish and Wildlife Association, and others—should look toward support and training within our own paradigm as opposed to the European industrial worldview. We have much to offer.

Throughout the world, examples abound of traditional knowledge and indigenous law as the foundation for sound policy—in the rain forest, in the South Pacific, and in the Arctic. A new model—an autocthonous one, *springing from this land*—needs to emerge, and I, for one, hope that this movement embraces the challenge with principles and courage. We can only do better by combining these traditions in Anishinabeg Akiing, the peoples' land.