CHOICES FOR SUSTAINABLE LIVING

25 YEARS

Northwest Earth Institute

DISCOVER CHANGE, TOGETHER.

DISCUSSION COURSE ON

CHOICES FOR SUSTAINABLE LIVING

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OUR VIEW OF SUSTAINABILITY

By Felipe Ferreira for Northwest Earth Institute

Environment, climate change, renewable energy, pollution, recycling, just economies, appropriate technologies… If we were to co-create a word cloud for the term "sustainability," it is very likely that these and/or similar terms would occupy the largest space in it. You can probably brainstorm several more sustainability-related terms right now. But what exactly does sustainability mean?

In its most general sense, sustainability refers to the capacity to maintain a process over time. For example, a business is considered financially sustainable when it can continue to make enough money to pay its employees and produce its products or services. In ecology, a sustainable system is one whose most fundamental functions and features — its carrying capacities — are preserved over time. In practical terms, ecosystems tend to increase in biodiversity, complexity, and overall ecological output until they eventually reach a climactic state where they are able to maintain themselves unless their integrity and balance are compromised.

Sustainability's origins in Western culture can be traced back to the writings of philosophers and pioneering environmentalists like John Locke, Aldo Leopold, and Rachel Carson. Sustainability as an aspirational idea was first discussed during 1) the Limits to Growth debates in the 1960s and 70s, when a number of people suggested that economic and population growth were the direct cause of environmental degradation and were therefore unsustainable and should be limited; and 2) the 1972 United Nations (UN) Stockholm Conference, the UN's first major conference on international environmental issues. Since then, it has been used by many to describe a vision, to inspire aspirations, to outline a set of values, and even as a marketing buzzword. Despite conflicting opinions over what the terms 'sustainability' and its variant 'sustainable development' actually mean, they have gained a lot of traction in the last two decades. They have been explored and applied across different environmental, social, economic, and geographical contexts. Perhaps the most commonly quoted definition of sustainable development is that of the *World Commission on Environment and Development* (WCED), who in 1987 stated that "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

In part because the concept of sustainability was developed in response to growing environmental degradation, sustainability as a Western concept has focused on reactions to or cures to our immediate crises instead of offering alternative paradigms that can actually generate lasting, ecologically sound transformations. Perhaps due to the Western assumption that the future is one of endless economic growth and steadily evolving technology, sustainability has relied primarily on technological and economic fixes that treat the symptoms rather than the underlying causes of the pressures we face: the values, beliefs, and mental models that we hold about each other and the planet we inhabit. And as Albert Einstein once put it, "No problem can be solved from the same consciousness that created it." Only by delving into the origins of our current 'ethos of unsustainability' can we really come up with new paradigms that are

DEFINITIONS

Capitalism: An economic system in which investment in and ownership of the means of production, distribution, and exchange of wealth is made and maintained chiefly by private individuals or corporations,especially as contrasted to cooperatively or state-owned means of wealth.

Commodification: The transformation of goods, services, ideas and people into commodities, or objects of trade.

Consumer culture: A form of capitalism in which the economy and culture are focused on the buying and selling of consumer goods and the spending of consumer money. Most economists agree that the United States is a consumer culture.

Culture: The way of life or social norms of a particular people, especially as shown in their everyday behavior and habits, their attitudes toward each other, their values, and their moral and religious beliefs.

Ecological identity: A person's view of their relationship to, their responsibility to, and how they interact with natural and social ecosystems.

Feedback loop: A structure or function of a system that causes output from one part of the system to "feed back" into the system, eventually influencing input to that same part of the system.

Resilience: The ability to recover from or adjust easily to difficulties or change.

Systems thinking: A way of conceptualizing and understanding the world that focuses on how various elements within a system — which could be an ecosystem, an organization, or something more dispersed such as a supply chain — are related to and influence one another.

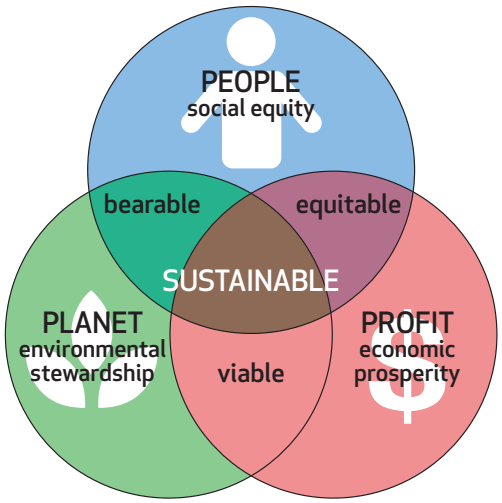


Figure 1. The triple bottom line system.

capable of encouraging the significant shifts in individual and collective consciousness required to advance sustainability. By unearthing the roots of the crises that sustainability attempts to address, it becomes clearer that the dominant culture — the culture that is the most powerful, widespread, or influential within a society — is at the core of the environmental crisis. If we challenge and rethink our mental models and values, we can lay down the groundwork for the social and cultural innovations necessary to heal our alienation from each other and the wider ecological community.

In addition to questioning the cultural norms and worldviews that guide the 'ethos of unsustainability,' if sustainability is to prove useful and beneficial, it needs to be future-oriented and emphasize the power of transformational envisioning and 'futures thinking.'

FUTURES THINKING

In a nutshell, futures thinking is the process of imagining the potential consequences of past and current human activities by critically analyzing them today. Futures thinking involves forecasting probable futures, possible futures, and unexpected futures. Applying futures thinking can help us move away from a way of thinking that relies solely on critique and doomsday scenarios to one that is about personal and collective transformation and hope. We can use futures thinking to build new, more just and sustainable futures. By understanding sustainability as a constant, dynamic envisioning exercise, we can unshackle our imaginations from the limits of what is possible or impossible in our current context and expand the landscape of possibilities for the future. A critical approach to futures thinking can transcend both the crisis of imagination and the crisis of power that often prevent the development of sustainable realities. As lifelong activist Dorothy Day once said, "Just because something is impossible doesn't mean you shouldn't do it." By freeing our minds from the limits of today's current systems, we can develop an empowering sense of agency and responsibility for our choices and actions — and their complex consequences — in ways that spark both personal and collective transformation.

NESTED SYSTEMS AND SUSTAINABILITY

Unlike the more common models informed by the WCED and their focus on the triple bottom line system (Figure 1), which fail to recognize the ecological constraints that human cultures and economies must operate within, we advocate for the framing of a deeper, more critical and visionary sustainability that highlights the nested quality of ecological systems (Figure 2): each individual system is an integrated whole while also being a part of larger systems; changes within one system can impact the health of the systems that are nested within it as well as the larger systems in which it lives. This model recognizes that economies are subsets of human cultures — they only exist within the context of our societies — and similarly, that human societies and economic activities are completely constrained by the ecosystems of the planet. This lens is not only more ecologically literate, but it also challenges the Western notion that humans are separate from nature and that ecological and socio-economic issues are not interconnected. It holds that an actual sustainable society is one where wider matters of social and economic needs

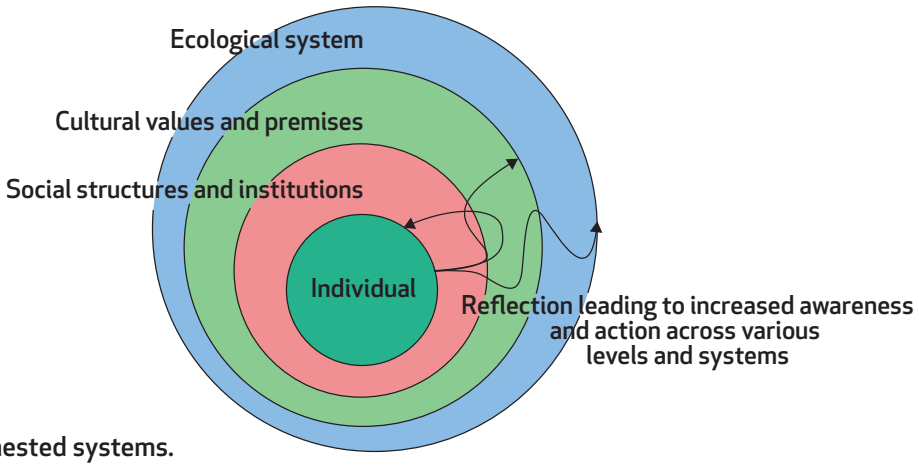


Figure 2. Sustainability and nested systems.

are intrinsically connected to the dynamic limits set by supporting ecosystems.

The concept of nested sustainability is rooted in systems thinking — the capacity to collectively examine complex systems across different domains (society, environment, and economy) and across different scales (local to global). Because of this, nested sustainability argues for localized visions of sustainability that are situated within and, therefore, in conversation with, the larger, global context.

Local contexts often provide the most immediate and effective space for real change. Solutions that are conceived and implemented on the local level offer more flexibility and are generally more tangible than global ones. They are often the most participatory and effective since they can address issues that are specific to a particular community or region and be tailored to local ecosystems. However, in an economically globalized world, these local solutions ought to be envisioned through a "glocal" prism, one that is characterized by both local and global considerations. This understanding of the interconnections between the various dimensions and scales of sustainability is key to the development of context-oriented solutions to the complex issues we face currently and into the future.

SUSTAINABILITY, POSITIONALITY, AND EQUITY

Sustainability has the potential to provide a holistic framework that can bridge the gap that is often found between socio-economic justice and environmental considerations. After all, recent studies indicate that the issue of environmental quality is inevitably linked to that of human equity, and thus they need to be thought about together. When we talk about equity, it is necessary to consider how our different socio-cultural and ecological identities shape our perspectives, assumptions, and values. Here we refer to the need to envision sustainability by looking at the issues at stake through a position-based lens, or "positionality" — how we perceive the world from different lived experiences, identities and perspectives. By examining how our cultural and ecological locations mold our mental models and patterns of thinking, we can frame sustainability as an ongoing dialogue between various viewpoints that complement each other in an effort to generate diverse and localized solutions to complex global problems.

Just because a perspective is the dominant one, it does not mean it is the most accurate one. With that in mind, the authors of this course book have exercised intention in selecting articles that represent distinct views of sustainability, but we have not represented them all. We have elevated less dominant perspectives to encourage conversation about what is both equitable and achievable. We have prioritized content that helps you to connect with your peers, create a community of support, contrast differing views, reflect on your own values and assumptions, and move to action.

A CALL FOR INDIVIDUAL AND SYSTEMIC CHANGE

Starting to work toward sustainability almost always starts with individual actions. Changing your own lifestyle — reducing your waste, using active transportation, or eating less meat, for example — is the easiest, most accessible way to start to understand and interact with larger systems.

This session is a call to sustainability for you as an individual. We need you to act. We need everyone to do what they can to create the shift to a more sustainable world. But, while behavior change toward sustainability starts at the individual level, for broad and more lasting change to occur, it cannot stop there. Individual actions collectively have a big impact, but we also need to change policies, structures, laws, and, ultimately, our cultural premises and values in order to create a sustainable world. As we mentioned above, focusing on the local level while keeping a global perspective can often be the most effective lever for creating lasting change. At the same time, people studying and practicing sustainability need to be able to both deconstruct current systems through analysis and critique, as well as envision and enact alternatives to our current destructive systems.

The continuum of systemic change (Figure 3) helps us think about the different ways to be involved in systemic change. It is very natural to move from one place to another over time depending on our positions and the work we want to or can do. Different parts of involvement are placed on particular parts of the continuum to reflect the places where they typically arise. Yet, it is important to recognize that they can shift and might be placed on different parts of the continuum depending on how we engage in them.

We hope that this course book will empower and inspire you to help improve the communities in which you live. We believe that we, both individually and collectively, should be able to make those decisions that affect our lives, and that engaged participation in systemic change is essential to that. It starts with individual people and arises from many sources, from changes in technology to shifts in economic systems and to larger, paradigmatic transformations.

We conclude this introduction with a few words of wisdom by cultural anthropologist Margaret Mead: "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has."

QUESTIONS FOR REFLECTION

- How would you define sustainability using your own words? Has your definition changed after reading this article? If so, describe how it has changed.
- How does this framing of sustainability contrast/compare to the more common definition of sustainability?

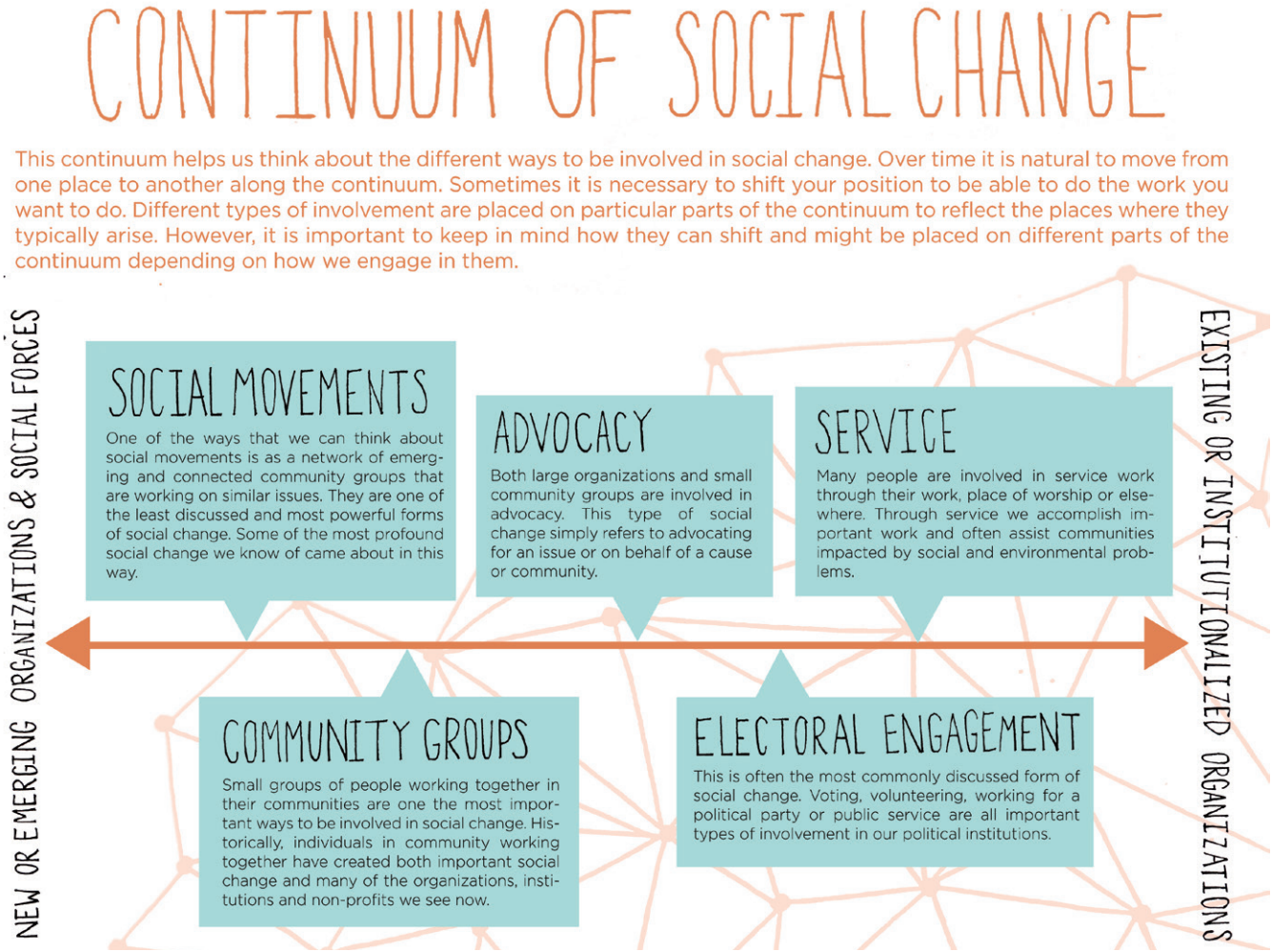


Figure 3. Continuum of systemic change. Appeared in *Resource Guide for Continuing Engagement*. Created by David Osborn, Portland State University, 2014. Used with permission.

- Identify one value, belief, or assumption from your culture that you believe contributes to the development of a more sustainable world. What is it about this particular value, belief, or assumption that makes it more in line with sustainability? Now try to do this same exercise but with an aspect of your culture that you think hinders sustainable practices.
- What do you believe the term 'ethos of sustainability' mean? Why is it important (if at all)?
- Sustainability is typically perceived, at least in the Western world, as relating primarily, if not exclusively, to environmental concerns. How does this article challenge that premise?
- What does your vision of a sustainable community look like? What would need to be changed in order for such vision to become reality?

Felipe Ferreira is a dreamer and budding sustainability educator hailing from Brasilia, Brazil. As a critical sustainability scholar, his research interests include productions of nature, popular culture and sustainability, and critical consciousness development.

CULTURE TREE

By Zaretta Hammond

It can be helpful to think of sustainability as a cultural framework for viewing and interacting in the world, otherwise known as a "worldview." But what is culture?

Culture, it turns out, is the way that every brain makes sense of the world. That is why everyone, regardless of race or ethnicity, has a culture. Think of culture as software for the brain's hardware. The brain uses cultural information to turn everyday happenings into meaningful events.

LEVELS OF CULTURE

Culture operates on a surface level, an intermediate or shallow level, and a deep level.

Surface culture

This level is made up of observable and concrete elements of culture such as food, dress, music, and holidays. This level of culture has a low emotional charge so that changes don't create great anxiety in a person or group.

Shallow culture

This level is made up of unspoken rules around everyday social interactions and norms, such as courtesy, attitudes toward elders, nature of friendship, concepts of time, personal space between people, nonverbal communication, rules about eye contact, or appropriate touching. It's at this level of culture that we put into action our deep cultural values.

This level has a strong emotional charge. At the same time, at this level we interpret certain behaviors as disrespectful, offensive, or hostile. Social violation of norms at this level can cause mistrust, distress, or social friction.

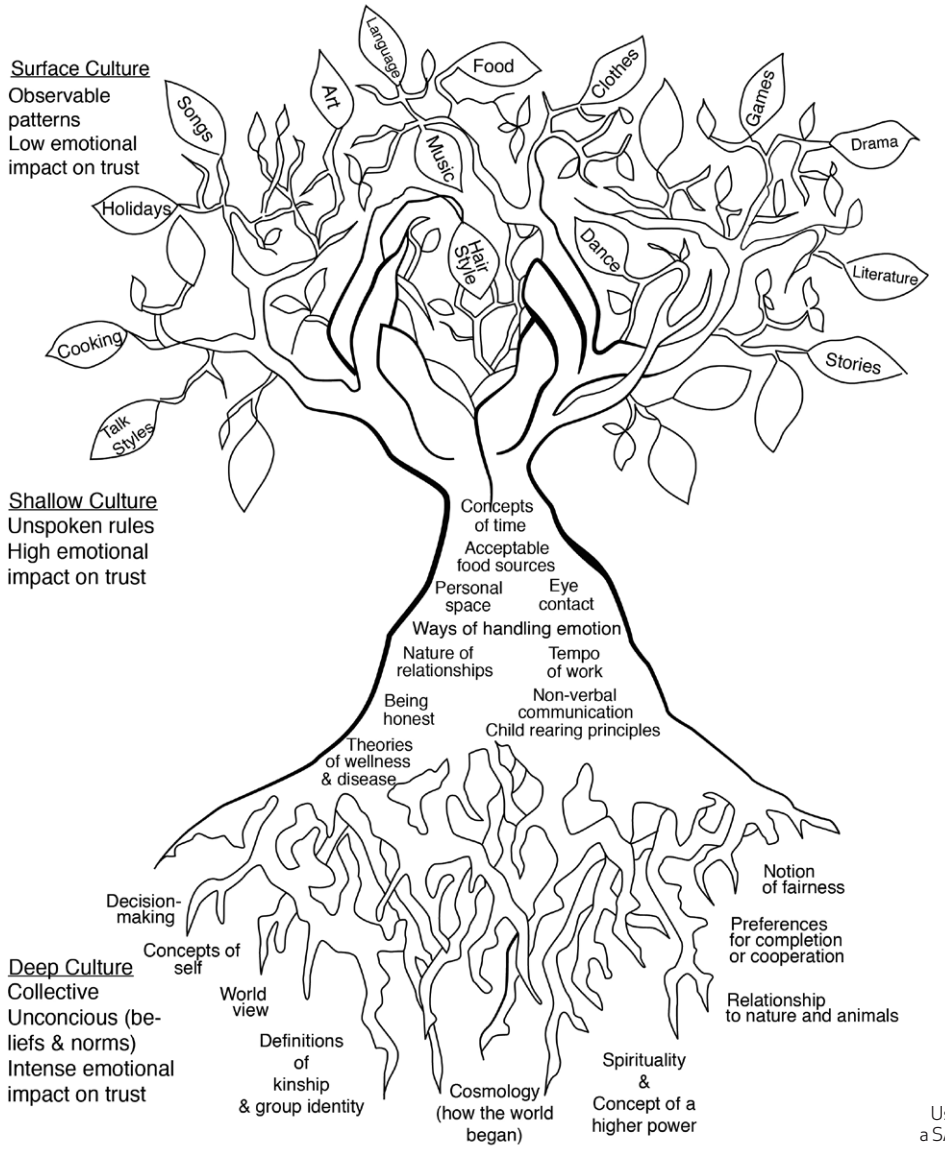
Deep culture

This level is made up of tacit knowledge and unconscious assumptions that govern our worldview. It also contains the cosmology (view of good or bad) that guides ethics, spirituality, health, and theories of group harmony (i.e., competition or cooperation). Deep culture also governs how we learn new information. Elements at this level have an intense emotional charge. Mental models at this level help the brain interpret threats or rewards in the environment.

The culture tree

Compare culture to a tree. A tree is part of a bigger ecosystem that shapes and impacts its growth and development. Shallow culture is represented in the trunk and branches of the tree while we can think of surface culture as the observable fruit that the tree bears. Surface and shallow culture are not static; they change and shift over time as social groups move around and ethnic groups intermarry, resulting in a cultural mosaic just as branches and fruit on a tree change in response to the seasons and its environment. Deep culture is like the root system of a tree. It is what grounds the individual and nourishes his mental health. It is the bedrock of self-concept, group identity, approaches to problem solving, and decision making.

Zaretta Hammond is a teacher educator and the author of *Culturally Responsive Teaching and The Brain: Promoting Authentic Engagement and Rigor Among Culturally and Linguistically Diverse Students*, from which this article is excerpted.



UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

On September 25th, 2015, world leaders in the United Nations adopted a set of seventeen goals to end poverty, protect the planet, and ensure prosperity for all as part of a new sustainable development agenda. The goals cover global challenges that are crucial for the survival of humanity. Over the next fifteen years, with these new Goals that universally apply to all, countries will mobilize efforts to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind. For the goals to be reached, everyone needs to do their part: governments, the private sector, civil society and people like you. Find a list of suggestions for taking action at un.org/sustainabledevelopment/takeaction/

OUR HOME ON EARTH

By Winona LaDuke

Giiwedinong means "going home" in the Anishinaabeg language — it also means North, which is the place from which we come. This is a key problem that modern industrial society faces today. We cannot restore our relationship with the Earth until we find our place in the world. This is our challenge today: where is home?

I returned to the White Earth Reservation in Minnesota about twenty-five years ago after being raised off-reservation, which is a common circumstance for our people. White Earth is my place in the Universe. It's where the headwaters of the Mississippi and Red Rivers are.

PEOPLE OF THE LAND

Anishinaabeg is our name for ourselves in our own language, it means "people." We are called Ojibwe, referring to "ojibige" (meaning "to write") on our birch bark scrolls. Our aboriginal territory, and where we live today, is in the northern part of five U.S. states and the southern part of four Canadian Provinces. We are people of lakes, rivers, deep woods and lush prairies.

Now, if you look at the United States, about 4 percent of the land is held by Indian people. But if you go to Canada, about 85% of the population north of the fiftieth parallel is native. If you look at the whole of North America, you'll find that the majority of the population is native in about a third of the continent. Within this larger area indigenous people maintain their own ways of living and their cultural practices.

There are a number of countries in the Western Hemisphere in which native peoples are the majority of the population: in Guatemala, Ecuador, Peru, and Bolivia. In some South American countries we control as much as 22 to 40 percent of the land. Overall, the Western Hemisphere is not predominantly white. Indigenous people continue their ways of living based on generations and generations of knowledge and practice on the land.

On a worldwide scale there are about five thousand indigenous nations. Nations are groups of indigenous peoples who share common language, culture, history, territory and government institutions. It is said that there are currently about five hundred million of us in the world today, depending on how you define the term indigenous. I define it as peoples who have continued their way of living for thousands of years.

Indigenous peoples believe fundamentally in a state of balance. We believe that all societies and cultural practices must exist in accordance with the laws of nature in order to be sustainable. We also believe that cultural diversity is as essential as biological diversity in maintaining sustainable societies. Indigenous people have lived on Earth sustainably for thousands of years, and I suggest to you that indigenous ways of living are the only sustainable ways of living. Most indigenous ceremonies, if you look to their essence, are about the restoration of balance — they are a reaffirmation of our relationship to creation. That is our intent: to restore, and then to retain balance and honor our part in creation.

Therefore, when I harvest wild rice on our reservation, I always offer asemaa (tobacco) because when you take something, you must always give thanks to its spirit for giving itself to you. We are very careful when we harvest. Anthropologists call this reciprocity. This means that when you take, you always give. We also say that you must take only what you need and leave the rest. Because if you take more than you need, you have brought about imbalance, you have been selfish. To do this in our community is a very big disgrace. It is a violation of natural law, and it leaves you with no guarantee that you will be able to continue harvesting.

We have a word in our language which describes the practice of living in harmony with natural law: minocimaatisiiwin. This word describes how you behave as an individual in a relationship with other individuals and in relationship with the land and all things. We have tried to retain this way of living and this way of thinking in spite of all that has happened to us over the centuries. I believe we do retain most of these practices in our community, even if they are overshadowed at times by individualism.

THE CLASH OF INDIGENOUS AND INDUSTRIAL WORLDVIEWS

I would like to contrast indigenous thinking with what I call "industrial thinking," which is characterized by five key ideas that run counter to what we as native people believe.

1. Instead of believing that natural law is preeminent, industrial society believes that humans are entitled to full dominion over nature. It believes that man — and it is usually man of course — has some God-given right to all that is around him. Industrial society puts its faith in man's laws: that pollution regulations, allowable catches, etc. are sustainable.
2. In indigenous societies, we notice that much in nature is cyclical: the movement of moons, the tides, the seasons, and our bodies. Time itself is cyclical. Instead of modeling itself on the cyclical structure of nature, industrial society is patterned on linear thinking. Industrial society strives to continually move in one direction defined by things like technology and economic growth.
3. Industrial society holds a different attitude toward what is wild as opposed to what is cultivated or "tame." In our language we have the word indinawayuuganitoog (all our relations). That is what we believe — that our relatives may have wings, fins, roots or hooves. Industrial society

believes wilderness must be tamed. This is also the idea behind colonialism: that some people have the right to civilize other people.

4. Industrial society speaks in a language of inanimate nouns. Things of all kinds are not spoken of as being alive and having spirit; they are described as mere objects, commodities. When things are inanimate, "man" can take them, buy and sell them, or destroy them. Some scholars refer to this as the "commodification of the sacred."
5. The last aspect of industrial thinking is the idea of capitalism itself (which is always unpopular to question in America). The capitalist goal is to use the least labor, capital, and resources to make the most profit. The intent of capitalism is accumulation. So the capitalist's method is always to take more than is needed. With accumulation as its core, industrial society practices conspicuous consumption. Indigenous societies, on the other hand, practice what I would call "conspicuous distribution." We focus on the potlatch — the act of giving away. In fact, the more you give away, the greater your honor.

Modern industrial societies must begin to see the interlocking interests between their own ability to survive and the survival of indigenous peoples' culture. Indigenous peoples have lived sustainably on the land for thousands of years. I am absolutely sure that our societies could live without yours, but I'm not so sure that your society can continue to live without ours.

SUSTAINABILITY IN ACTION

All across the continent there are small groups of native peoples who are trying to regain control of and restore their communities.

I'll use my own people as an example. The White Earth Reservation is thirty-six by thirty-six miles square, which is about 837,000 acres. A treaty reserved it for our people in 1867 in return for relinquishing a much larger area of northern Minnesota. Out of all our territory we chose this land for its richness and diversity. There are forty-seven lakes on the reservation. There's maple sugar, there are hardwoods, and there are all the different medicine plants my people use. We have wild rice, we have deer, we have beaver, we have fish — we have every food we need. On the eastern part of the reservation there are stands of white pine; to the west is prairieland where the buffalo once roamed. Our word for prairie is mashkode (place of burned medicine) referring to native practices of burning as a form of nurturing the soil and plants.

Our traditional forms of land use and ownership are similar to those found in community land trusts being established today. The land is owned collectively, and each family has traditional areas where it fishes and hunts. We call our concept of land ownership Anishinaabeg akiing: "the land of the people," which doesn't imply that we own our land, but that we belong on it. Unfortunately, our definition doesn't stand up well in court because this country's legal system upholds the concept of private property.

We have maintained our land by means of careful management. For example, we traditionally have "hunting bosses" and "rice chiefs," who make sure that resources are used sustainably in each region. Hunting bosses oversee rotation of trap lines, a system by which people trap in an area for two years and then move to a different area to let the land rest. Rice chiefs coordinate wild rice harvesting. The rice on each lake has its own unique taste and ripens at its own time. Traditionally, we have a "tallyman," who makes sure there are enough animals for each family in a given area. If a family can't sustain itself, the tallyman moves them to a new place where animals are more plentiful. These practices are essential to sustainability, and to maintaining what some now call the commons.

THE LOSS OF WHITE EARTH, AND HOW WE PLAN TO GET IT BACK

Our reservation was reserved by treaty in 1867. In 1887 the Nelson Act and subsequently the General Allotment Act was passed to teach Indians the concept of private property, but also to facilitate the removal of more land from Indian Nations. The federal government divided our reservation into eighty-acre parcels of land and allotted each parcel to an individual Indian, hoping that this would somehow force us to become farmers and adopt the notion of progress — in short, to be civilized.

The allotment system was alien to our traditional concepts of land. In our society a person harvested rice in one place, trapped in another place, gathered medicines in a third place, and picked berries in a fourth. These locations depended on the ecosystem; they were not necessarily contiguous. But the government said to each Indian, "Here are your eighty acres; this is where you'll live." Then, after each Indian had received an allotment, the rest of the land was declared "surplus" and given to white people to homestead or "develop". What happened to my reservation happened to reservations all across the country.

The state of Minnesota took our pine forests away and sold them to timber companies, and then taxed us for the land that was left. When the Indians couldn't pay the taxes, the state confiscated the land. But how could these people pay taxes? In 1910, they could not even read or write English.

I'll tell you a story about how my great-grandma was cheated by a loan shark. She lived on Many-Point Lake, where she was allotted land. She had run up a bill at the local store because she was waiting until fall when she could get some money from wild rice harvesting and a payment coming from a treaty annuity. So she went to a land speculator named Lucky Waller, and she said, "I need

to pay this bill." She asked to borrow fifty bucks from him until the fall, and he said: "Okay, you can do that. Just sign here and I'll loan you that fifty bucks." So she signed with the thumbprint and went back to her house on Many-Point Lake. About three months later she was ready to repay him the fifty bucks, and the loan shark said: "No, you keep that money. I bought your land from you." He had purchased her eighty acres on Many-Point Lake for fifty bucks. Today that location is a Boy Scout camp.

The White Earth Reservation lost two hundred and fifty thousand acres to the state of Minnesota because of unpaid taxes. By 1920, 99 percent of the original White Earth Reservation land was in non-Indian hands. This was done to native peoples across the country.

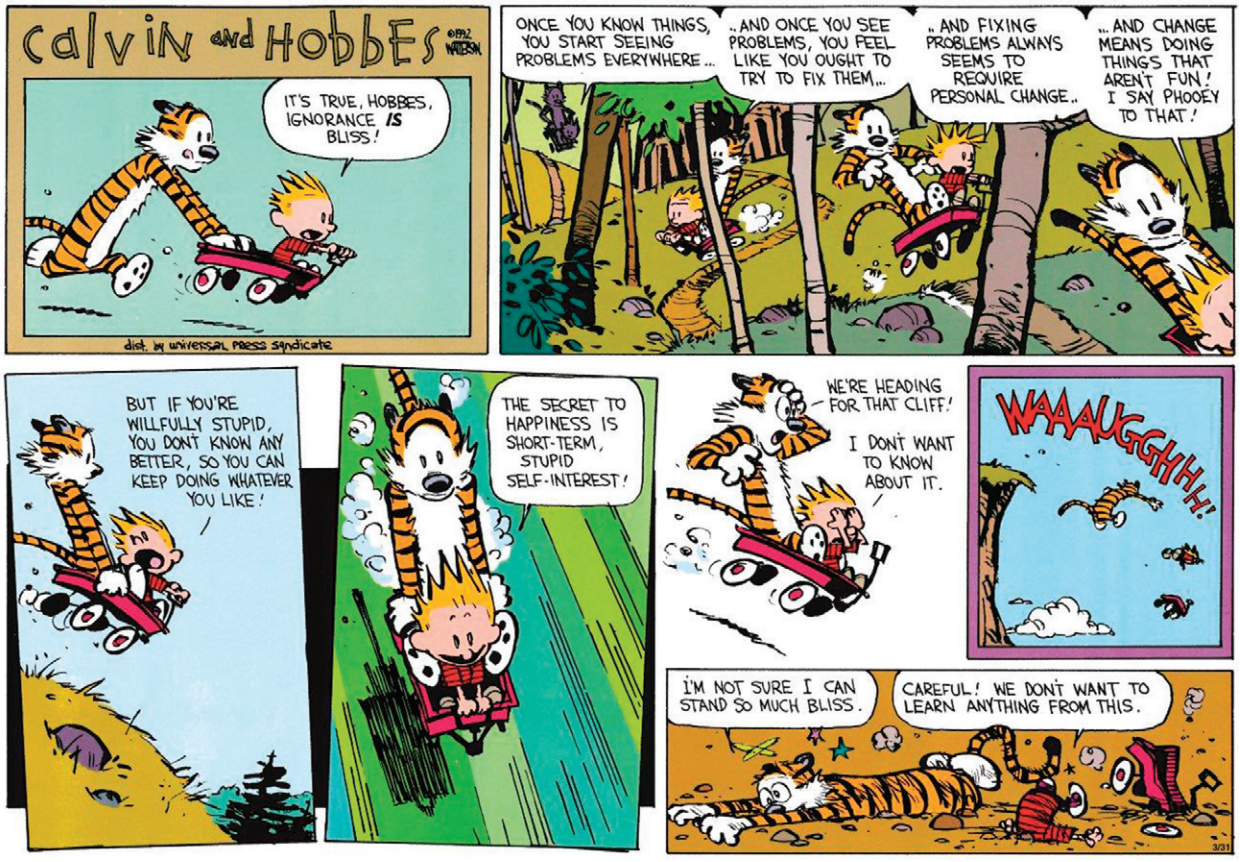
We have exhausted all legal recourse for getting back our land. The Federal Circuit Court ruled that to regain their land Indian people had to have filed a lawsuit within seven years of the original time of taking. Still, we believe that we must get our land back. We really do not have any other place to go. That's why we started the White Earth Land Recovery Project. Our project is like several other projects in Indian communities. We are not trying to displace people who have settled there. A third of our land is held by federal, state and country governments. That land should just be returned to us. It certainly would not displace anyone. Some of the privately held land on our reservation is held by absentee landholders — many of whom have never seen that land; they do not even know where it is. It is a commodity to them, not home. We hope to persuade them to return it to us.

Our project also works to reacquire our land. We bought some land as a site for a roundhouse, a building that holds one of our ceremonial drums. We bought back our burial grounds, which were on private land, because we believe that we should hold the land where our ancestors rest. We purchased a former elementary school, which is now the home of our new radio station and a wind turbine. In 2009, which is the 20th anniversary of our project, we had acquired 1400 acres. We use some of this land to grow and gather sustainable products that we sell: wild rice, maple syrup and candy, berry jams, and Birch bark crafts.

SUSTAINABLE COMMUNITIES, NOT SUSTAINABLE DEVELOPMENT

In conclusion, I want to say there is no such thing as sustainable development. Community is the only thing in my experience that is sustainable. We all need to be involved in building communities- not solely focused on developing things. We can each do that in our own way, whether it is European-American communities or indigenous communities, by restoring a way of life that is based on the land.

The only way you can manage a commons is if you share enough cultural experiences and values so that what you take out of nature doesn't upset the natural balance — minobimaatisiiwin, as we call it. The reason native cultures have remained sustainable for all these centuries is that



we are cohesive communities. A common set of values is needed to live together on the land.

Finally, I believe industrial societies continue to consume too much of the world's resources. When you need that many resources, it means constant intervention in other peoples' land and other peoples' countries. It is meaningless to talk about human rights unless you talk about consumption. In order for native communities to live and teach the world about sustainability, the dominant society must change. If modern society continues in the direction it is going, indigenous people's way of life will continue to bear the consequences.

Winona LaDuke lives on the White Earth Reservation in Minnesota, where she founded the White Earth Land Recovery Project to regain the Anishinaabeg people's original lands. Recipient of the International Reebok Human Rights Award, LaDuke serves as co-chair of the "Indigenous Women's Network":http://nativeharvest.com/winona_laduke

THOUGHTS ON SUSTAINABILITY

As we mentioned earlier this session, humans have a variety of ways of thinking about and framing sustainability. Sustainability means different things to different people. Consider these strong, widely-accepted, and substantiated thoughts as a starting point for developing your own sustainability framework.

> ***Sustainable development is meeting the needs of the present without compromising the ability of future generations to meet their own needs.***

— Our Common Future, *UN World Commission on Environment and Development*

> ***We stand at a critical moment in Earth's history, a time when humanity must choose its future. As the world becomes increasingly interdependent and fragile, the future at once holds great peril and great promise. To move forward we must recognize that in the midst of a magnificent diversity of cultures and life forms we are one human family and one Earth community with a common destiny. We must join together to bring forth a sustainable global society founded on respect for nature, universal human rights, economic justice, and a culture of peace. Towards this end, it is imperative that we, the peoples of Earth, declare our responsibility to one another, to the greater community of life, and to future generations.***

— The Preamble to *The Earth Charter*

> ***[I define sustainability] with great difficulty, because I'm a fluent speaker of my language, and if I try to translate that, or even interpret that into my language, it's not a very good word. It's a very inadequate word. . . Sustainability on one level means to be able to maintain and sustain the fullness of health that needs to be there for us to thrive, and for everything else to thrive. . . But the way in my language that it translates is sustaining the human abuse to a certain level, and keeping it at a level that it doesn't quite destroy everything. So that's not an adequate definition. . . What does it mean to 'sustain'? . . . If we look at the truth of what that might mean, that means that there should be no animal, or bird, or fish, or no plant that is on the endangered list, or that is on the species at-risk list. There should be no peoples who are in danger, or at risk or disappearing, or at the bottom of the economic curve, or the social curve. . . You're remaining ignorant and you're remaining uncivilized, if you cannot achieve one hundred percent sustainability of everything that you're using."***

— Jeannette Armstrong, Okanagan author and indigenous rights activist, "Native Perspectives on Sustainability: Jeannette Armstrong (Syilx)" [Interview transcript].

> ***Sustainability is equity over time. As a value, it refers to giving equal weight in your decisions to the future as well as the present. You might think of it as extending the Golden Rule through time, so that you do unto future generations (as well as to your present fellow beings) as you would have them do unto you.***

— Robert Gilman, Director, Context Institute

> ***The time has come for a global effort to build a new economic system no longer based on the dangerous illusions that irresponsible growth is possible on our finite planet and that endless material gain promotes well-being. Instead it will be a system that promotes harmony and respect for nature and for each other, that respects our ancient wisdom traditions and protects our most vulnerable people as our own family, and that gives us time to live and enjoy our lives and to appreciate rather than destroy our world. Sustainability is the essential basis and precondition of such a sane economic system."***

— Lyonchhen Jigmi Y. Thinley, former Prime Minister of Bhutan, in "Sustainability and Happiness: A development philosophy for Bhutan and the world"

> ***Sustainability means living within Earth's limits. . . Now is the time for fundamental change so that future generations can enjoy resources we take for granted — like clean air and water — and do not pay the price because we squandered this wealth.***

— David Suzuki, Co-Founder of the David Suzuki Foundation

SYSTEMS THINKING: A NECESSARY PERSPECTIVE IN OUR CHANGING WORLD

By the Worldwatch Institute

The word "system" is the most radical word spoken in any language. It is radical in the true sense because it points to our inescapable rootedness in the fabric of life, from microbes that inhabit our bodies to the air we breathe. The word symbolizes our implicatedness in the world and our dependence on things beyond ourselves. The modern celebration of individualism stands at the other extreme as an assertion of autonomy and independence from the friends, families, communities, societies, and ecologies on which we depend. Systems thinkers, in contrast, see the world as networks of interdependence, not merely as a stage for individual performance.[1]

One result of a systems perspective ought to be gratitude for the things that have been given to us that owe nothing to our individual efforts. In large measure, we are the result of our genes, upbringing, local conditions, teachers, cultures, and the particular places that nurture every moment of our lives, inside and out. We live, in other words, within a web of obligations and relationships that transcend the conventional boundaries by which we organize academic disciplines and bureaucracies.

Thinking of the world as a network of systems begins in natural history, ecology, and the study of biophysical conditions, both within and without. It likely begins early in life, in a child's curiosity about what is connected to what. It is grounded in the physical sciences, but it extends through every discipline in the curriculum. The tools of systems thinking range from complicated computer modeling to intuition and the vague hunch that something is missing.

Systems thinking leads to the recognition of the counterintuitive results of human action, to an awareness of the unpredictability of events, and, in turn, to the necessary precaution that leaves wide margins for error, malfeasance, and acts of God. But the scope, scale, and technological velocity of change now threaten the future of civilization. This gives us every reason to avoid making irrevocable and irreversible system changes without due diligence and a great deal of careful thought. Applied to policy and law, systems thinking would cause us to act with greater precaution and foresight.

The idea of systems is fundamentally political, because it underscores our interrelatedness and mutual dependence. The political community and the ecological community are one and indivisible, but they are not equal. The human community, in all of its manifestations, is a subset of the larger web of life. But the essential questions of politics — who gets what, when, and how — pertain throughout the entire system. The millions of human decisions that have appropriated the majority of the planet's net primary productivity for human use are political choices that cross species lines. The preservation of half of the Earth as a sanctuary for biodiversity, as proposed by biologist Edward O. Wilson, would be a political choice as well.[2]

This is familiar ground to most of the readers of Worldwatch's annual State of the World reports. But it is not well known or comprehended by the great majority of people in the United States, Europe, or elsewhere — a failure of education that has large consequences. The elections of 2016 in Western democracies, for example, showed the fault lines emerging in our civic culture. They are not, first and foremost, the standard disagreements between liberals and conservatives about the size and role of governments and markets. Rather, they are a dispute between advocates of competing paradigms about the possible and desirable scale of human domination of the ecosphere and who benefits and who loses.

The upshot is that recent political events in the United States and Europe reveal large disparities in scientific knowledge and in the command of factual evidence about Earth systems, ecology, oceans, and so forth. We might expect that, under growing ecological stress, there also would be a rise in demonization of "others," hatred, fear, demagoguery, and violence. In such circumstances, public ecological literacy will become increasingly important to inform and moderate political discourse and to improve governance under conditions of what political theorist William Ophuls once described broadly as "ecological scarcity."[3]

This essay is an excerpt from *EarthEd: Rethinking Education on a Changing Planet* by the Worldwatch Institute. For 40 years, Worldwatch Institute has been a leader in big-picture sustainability insight and multidisciplinary research..

WATCH THIS VIDEO!
For an example of how systems thinking acknowledges the interrelationships in networks, watch this video to see what happened when wolves were reintroduced back into Yellowstone National Park in 1995: youtube.com/watch?v=ysa5OBhXz-Q

A SYSTEMS THINKING MODEL: THE ICEBERG

Systems thinking is a way of conceptualizing and understanding the world that focuses on how various elements within a system — which could be an ecosystem, an organization, or something more dispersed such as a supply chain — are related to and influence one another.

Systems thinking helps us approach problem more effectively. Rather than reacting to individual problems that arise, a systems thinker will ask about relationships to other activities within the system, look for patterns over time, and seek root causes.

"...we are not seeing a new world, but rather our old world through new eyes."

One systems thinking model that is helpful for understanding global issues is the Iceberg Model. We know that an iceberg has only 10 percent of its total mass above the water while 90 percent is underwater. But that 90 percent is what the ocean currents act on, and what creates the iceberg's behavior at its tip. Global issues can be viewed in this same way.

LEVELS OF THINKING

1. **THE EVENT LEVEL**

   The Event Level is the level at which we typically perceive the world: for instance, waking up one morning

THE ICEBERG

A Tool for Guiding Systemic Thinking

EVENTS — **React**
What just happened?
Catching a cold.

PATTERNS/TRENDS — **Anticipate**
What trends have there been over time?
I've been catching more colds when sleeping less.

UNDERLYING STRUCTURES — **Design**
What has influenced the patterns?
What are the relationships between the parts?
More stress at work, not eating well, difficulty accessing healthy food near home or work.

MENTAL MODELS — **Transform**
What assumptions, beliefs and values do people hold about the system? What beliefs keep the system in place?
Career is the most important piece of our identity, healthy food is too expensive, rest is for the unmotivated.

to find we have caught a cold. While problems observed at the Event Level can often be addressed with a simple readjustment, the Iceberg Model pushes us not to assume that every issue can be solved by simply treating the symptom or adjusting at the Event Level.

2. **THE PATTERN LEVEL**

   If we look just below the Event Level, we often notice patterns. Similar events have been taking place over time — we may have been catching more colds when we haven't been resting enough. Observing patterns allows us to forecast and forestall events.

3. **THE STRUCTURE LEVEL**

   Below the Pattern Level lies the Structure Level. When we ask, "What is causing the pattern we are observing?" the answer is usually some kind of structure. Increased stress at work due to the new promotion policy, the habit of eating poorly when under stress, or the inconvenient location of healthy food sources could all be structures at play in our catching a cold. According to Professor John Gerber, structures can include the following:

   1. Physical things — like vending machines, roads, traffic lights or terrain.
   2. Organizations — like corporations, governments, and schools.
   3. Policies — like laws, regulations, and tax structures.
   4. Ritual — habitual behaviors so ingrained, they are not conscious.

4. **THE MENTAL MODEL LEVEL**

   Mental models are the attitudes, beliefs, morals, expectations, and values that allow structures to continue functioning as they are. These are the beliefs that we often learn subconsciously from our society or family and are likely unaware of. Mental models that could be involved in us catching a cold could include: a belief that career is deeply important to our identity, that healthy food is too expensive, or that rest is for the unmotivated.