

# **Collaborative Spunk**



# Collaborative Spunk

The Feisty Guide for Reviving  
People and Our Planet



A. GAYLE HUDGENS, PH.D., MCC

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*This book is dedicated to all life  
and  
everyone's great, great, great grandchildren*

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## Foreword

Until now, developing sustainable societies has been a slow process. There are many reasons, including psychological reasons similar to the procrastination that addicts encounter when they want to give up smoking, alcohol, sugar and fats, or drugs. “I’ll do it later,” they say.

Another reason is confusion, the overcoming of which has been our distinctive focus within The Natural Step. We specialize in a pedagogy that improves on perception (seeing the funnel and the self-benefit in avoiding its walls), understanding (thermodynamics and the cycles of nature), and comprehension (developing a set of basic principles that gives meaning to the word “holistic”).

The type of understanding that The Natural Step creates and shares is a prerequisite for bringing about a team. If people in a group do not have a shared understanding about the basic rules of the system they are managing, nor a shared understanding of how to define success, how can you then expect them to behave like a team? However, even if a group *has* these things, it may not be enough.

Gayle Hudgens’ unique contribution in *Collaborative Spunk* is that she helps us think about what goes *beyond* this aspect of team-building. She skillfully introduces a dimension of sustainable development that goes beyond the foundational perception, understanding, and comprehension, yet is at the heart of it all: community building and cultural change.

A powerful and constructive new culture built on the awareness of our interdependence with other species and with each other cannot be dictated. No true culture can. A sustainable culture must evolve through organic growth. Yet, it cannot be said to be a responsible attitude to sit down and wait for organic growth when the very conditions for prosperity and decency, and in the end survival of civilization, are threatened by an obsolete paradigm.

We *must* change the paradigm if we want to sustain civilization, yet we cannot force a new paradigm onto people, and we cannot sit and wait for it to happen by itself. The answer to this dilemma is coaching! This is a humble, caring, and listening way of interacting with other people.

Hudgens provides a methodology for rewarding sustainability practitioners with coaching skills and human development pointers useful in their relationships with clients and public officials. Her approach helps coaches expand their perspectives and strategies so that they can offer sustainable alternatives to their target groups. It benefits activists in public interactions, as they become less strident and more attractive. It empowers closet activists to take a stand and everyday caring people to relate more effectively as they convey the sustainability message and implement it at the local level. Indeed, it spurs nearly all Coach Five Project participants to encounter meaningful dialogue and a supportive, caring community.

At The Natural Step, we are conscious about the need to engage in not only the theory of thinking and planning as such, but also on how to build communities around thinking and planning. It is true, I think, that “understanding and comprehension” in themselves foster an underestimated source of enthusiasm. And it is perhaps also true that The Natural Step discovered a way to employ this power to engage more people into the process. That is, we have encouraged the already engaged by providing stronger working models and tools.

Still, the social aspect of optimizing community building has been a blind spot in our way of working. This is why I find *Collaborative Spunk* so compelling, and so longed for.

What’s more, for readers who have been saying, “I’ll do it later,” Hudgens’ methodology motivates them to take action now. This book will fulfill their need-to-know what it will take to shift to a new sustainable culture, essential for accelerating the development of sustainable societies. They will also discover they can have fun in the process and build strong friendships along the way.

*Dr. Karl-Henrik Robèrt, Founder  
The Natural Step  
June 2002*

## Preface

Everything is connected: Our galaxy is connected to the universe, our planet to the solar system, the cycles that sustain life on Earth to the sun, and the present to the future. Quantum physics, modern ecology, and ancient wisdom traditions tell us of the unity and relatedness of all things. People everywhere are connected to Nature and to each other. Our personal prospects are intimately and complexly mingled with those of humanity.

For more than twenty years, I have been on the lookout for a way ordinary people might become “leaderful” and boost humanity’s prospects as well as their own. A world teeming with sorrow and convulsed by violence, terrorism, pollution, injustice, and now mass extinction is more than good hearts can endure. Inspired by a compelling vision of a viable, just and more joyful future for everyone, I kept watch year after year.

By 1996, I was beginning to feel this quest might be futile. Then my daughter, Amy Watson Logan, introduced me to Life Coaching. I quickly discovered it far surpassed the Life Planning I ventured into as a futurist in the 1980s. Shortly after that I heard about The Natural Step, investigated, and then completed the advanced training in 1997. In a singular “aha” moment, I saw clearly that the marriage of The Natural Step Framework and an evolved form of Life Coaching presented an exceptional prospect for humanity.

Never a big fan of single factor solutions, I regard the synthesis of The Natural Step Framework and Life Coaching an exciting, potent, and sound alternative to the personal, social, economic, and ecological violence plaguing our world. Combined with what I call the Coach Five Project, it is an overall strategy that begets a “higher social intelligence”—something philosopher-physicist David Bohm said we must have to survive.

My intention is for this book *to serve as a guide for raising the bar in all our human activities*. “Raising the bar” entails meeting human needs worldwide and co-evolving toward a life-sustaining future without further delay. In that spirit, I invite everyday caring people to take the lead in their own lives and communities using the three-part comprehensive strategy I propose:

**The Natural Step.** I embrace The Natural Step in this global yet local undertaking because it is both scientifically rigorous and socially responsible.

Equally important, almost everyone can relate to and apply its framework in their lives and work. Established in 1989 by Swedish cancer doctor and cell scientist Dr. Karl-Henrik Robèrt, The Natural Step is an international network of non-profit educational organizations working to accelerate the movement toward a sustainable society.

So you will know my perspective at the outset, I define a “sustainable” society as a healthy, thriving society that is heedful of meeting present and future human needs and favored with good prospects for continuing in existence for longer than the foreseeable future. It is *not* a society threatened by ecological catastrophe, economic tyranny, or social chaos, any one of which can plunge it into a quick collapse, a prolonged anguish, or a social transformation.

The framework of The Natural Step is easy to understand. You do not have to be a scientist to apply it in your life or in your community. In fact, that General Science class you endured in seventh grade will at last make sense to you. Like most people, you probably have not thought about Nature and Society in this way before.

The Natural Step Framework will not only help you think; it also serves as a superb planning tool and spurs us to look at our lives and work in vastly new ways. Applying the framework is an on-going process. Its element of consensus fosters shared agreement on how together we want our society—and, likewise, our communities, organizations and economy—to operate in this new century and beyond.

Based on four scientific principles derived from a consensus of fifty leading scientists, the framework serves as a compass to guide society toward a socially just, economically secure, and ecologically healthy future. It gives us a common language and helps us make wiser decisions and create solutions “upstream” where complexity is diminished. Its rigorous set of principles serves as a baseline of sustainability and prevents debate and misunderstandings over what is and is not sustainable. As a shared mental model, the framework helps us align our lives, work, civil activity, and aspirations with four “non-negotiable system conditions” required for life to continue on our planet.

It has already helped IKEA, McDonald’s-Sweden and scores of other businesses, organizations, and municipalities around the world, and *thousands* of individuals across the globe move toward more prosperous and sustainable futures.<sup>1</sup>

To survive and thrive our species needs *millions* of people to know *what to do, how to do it, and who to be and become*. That is where the strategy of combining the brilliance of The Natural Step Framework with the goodwill of Life Coaching comes to the rescue.

**Life Coaching.** I include Life Coaching, a hugely popular and internationally attractive human development approach, because it is a collaborative, motivating, vision- and goal-oriented way of realizing extraordinary outcomes. On a one-to-one basis or in groups, Life Coaching, like its cousins, Career Coaching and Business Coaching, is an ongoing relationship that inspires people to take action and move forward to actualize their aspirations.

Coaching helps bring about joy and fulfillment in our personal and public lives. *Time* magazine called Life Coaching the “Un-therapy.” Some people call it a new form of life consulting. In my own experience, I find the power of Life Coaching to be more like education, facilitation, and training—on steroids.

**The Coach Five Project.** Because of the urgency of our shared dilemma, I incorporate The Coach Five Project. It is my own notion of what will best work to replicate and spread the wisdom of The Natural Step and Life Coaching as rapidly as possible around the world. The Project not only builds strong personal and social communities—it also breeds a compelling new vision, the process of which needs to become more fun than spectator sports and traditional entertainment.

The Coach Five Project centers upon The Natural Step Framework and local informal practice groups, or coaching circles, helping to midwife a branch of Life Coaching I call “Coaching as if the Whole World Matters.” Coaching circles of five or so friends (or salon-type dialogue groups, college seminars or teach-ins) spend a few hours each week for several months learning The Natural Step Framework and how to coach people in their communities to incorporate this higher social intelligence into their planning, decision-making, and everyday activities.

Containing a built-in multiplier effect, the Coach Five Project accelerates the strategy in such a way that The Natural Step message and the coaching mind-set catch on widely, from the bottom up. In far less than a generation, ordinary people on every continent can co-create extraordinary, diverse, and life-sustaining outcomes. If humanity ever needed such outcomes, it is now. World public opinion will cheer a social transformation in the form of healthy self-determined people and robust, peaceful, sustainable communities that are also strikingly prosperous.

To make the book easier to use and share with others, each chapter has three parts. The introductory “Foothold” provides a secure base for further progress on our shared journey toward a new life-sustaining future. The “Finer Focus” section addresses the core concepts of each chapter.

The “Farewell Footprint” sums up the implications of each chapter. In addition, it also serves as an ongoing reminder of the “ecological footprint” developed by Mathis Wackernagel to measure the area required for supporting our current lifestyles. It asks us to consider—and adjust—how much productive land and water we occupy to produce all the resources we consume and to absorb all the waste we create. Nature provides an average of 5.7 acres of productive land and water for every person in the world. The average size of the U.S. citizen’s ecological footprint has reached more than 24.0 acres. The combined ecological footprint of six billion people on the planet is leading us toward “ecological bankruptcy.”<sup>2</sup>

Resolving our global dilemma requires millions of people taking a stand for a new and positive story about the future of life on our planet—a stand for all life to thrive and all people to flourish. The synthesis of Life Coaching and The Natural Step Framework provides the precise strategy for generating that stand. All that is missing is you—your active participation is essential.

Initially you may want to scan the “Foothold” and “Farewell Footprint” sections to get a feel for the book or you may choose to read some of the chapters on coaching first and then start from the beginning. Suit yourself. Just be sure to share the ideas with others.

*Sharing* is how we, everyday caring people, are going to do our utmost to assure that our grandchildren and their grandchildren get to enjoy the full texture of life on our magnificent and unique planet.

*Collaborative Spunk* is for anyone who:

- is attracted to a healthy and flourishing future
- wants to acquire basic coaching skills to use in their communities
- cares about human needs, future generations, the Earth, and all life
- desires to expand their own scope of ideas and approaches
- finds personal and social transformation engaging
- wishes to co-create a more livable world
- longs to help others do the same

Cultural Creatives, Step Heads (aficionados of The Natural Step), Generation Xers, college students and their instructors, many grandparents concerned about their offspring’s future, professional coaches, people curious about coaching or sustainability, sustainability practitioners and advocates, engaged citizens, and community activists will benefit from this book and want their friends to read it, too.

When I was a child, my parents had a charming Mexican brandy decanter, which was actually a pair of glass bottles fused together with their swan-like necks and small corked spouts gracefully leaning in opposite directions. As you poured the spirits from the peach brandy side, the strawberry brandy remained safely sequestered within its plugged flask. If you wanted to mix them, you uncorked both sides, held the decanter above a wide-mouthed pitcher or punch bowl, and poured “just a smidgen” as my mother liked to say.

Consider this book the spirited decanter of two knowledge bases, one being The Natural Step Framework for shaping healthy, diverse, and prosperous societies—and the other, an introductory knowledge base on Life Coaching for personal growth and human development. Tasted separately, they are full of flavor and hold large possibilities. Uncorked, mixed, and poured into the pitcher of The Coach Five Project, they offer a strategy for awakening a higher social intelligence and a promising prospect for you, your community, and humanity as a whole.

So, absorb the “spirits” of this book. Honor your well-being, good-fellowship, and options. When we collaborate to serve a purpose larger than ourselves, we create realities far more remarkable than would be possible on our own.

*A. Gayle Hudgens, Ph.D., MCC  
On the edge of the beautiful Texas Hill Country  
May 2002*

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The Reverend Cecil Williams, who, as director of a youth week I attended shortly after desegregation, electrified my formative social conscience. From him I learned to mix joy and compassion with courage.

The journalists who stretched my youthful mind when I was a teenage American Field Service exchange student in Argentina with their pithy questions about U.S. policy on racial matters and the health effects of atomic weapons. From them, I learned that the United States was not perfect.

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Dr. Karl-Henrik Robèrt for contributing exquisite comments at a critical stage and, like a steadfast master coach, for continuing to champion the book. My gratitude is immeasurable.

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**PART I**  
**The Natural Step Framework**  
**for Life to Thrive**



## CHAPTER 1

# Tight Squeeze

## No Wonder You Feel Jammed

*What I see is that humankind is running into a funnel of declining life-sustaining resources and increasing demands.<sup>3</sup>*

—Karl-Henrik Robért  
Founder of The Natural Step

*We are far better at making waste than at making products. For every 100 pounds of product we manufacture in the United States, we create at least 3,200 pounds of waste. In a decade, we transform 500 trillion pounds of molecules into nonproductive solids, liquids, and gases.*

—Paul Hawken

### **Foothold**

The future of life on our planet is in question. That is the blunt reality of our present moment. Yet as each day passes, most of us simply go about our lives mindlessly ignoring this challenge and gambling with ever-higher stakes.

You might logically call such a blasé response to extreme danger “insane.” What scientists, futurists, engaged citizens, eco-coaches, and a few politicians have termed this response to our planetary situation is “unsustainable.” Life cannot be sustained or kept in existence unless we accept what I call “Nature’s Ultimatum:”

Natural laws govern the conditions that sustain life on our planet Earth. We cannot systematically violate these nonnegotiable conditions without eventually inviting disaster. If we want life to continue, we must acknowledge, honor, adapt to, thrive on and share with others this awareness until it becomes the foundation of our culture.

Just as the police may give us a warning for breaking traffic laws, Nature’s warnings are all around us, granting us a second chance to change our

unsustainable ways. When our driving privileges are at stake, we are sometimes granted a chance to clean up our driving record by taking a defensive driving course. I invite you to consider this book an opportunity to clean up the human record. It is a practical “thriving course” for a healthy, just, and prosperous future for all of us. Since the stakes involve serious penalties if terms of Nature’s Ultimatum are not accepted, I encourage you to take a stand for life, for our common future. The journey will reward you bountifully.

Taking a stand for life begins with merging sustainability into our consciousness. Sustainability is not solely about sustaining the environment. True sustainability depends on ecological wisdom, social justice and economic democracy—in a word, fairness. Sustainability fosters the health, abundance and diversity of people and other living things. Like the web of life linked to a bountiful, organic garden, sustainability also nurtures and cultivates a healthy, fair, and flourishing harvest for the coming seasons and future generations.

What we are experiencing now, however, is more like an unsustainable tight squeeze. Instead of a bountiful garden, we have sea levels rising on one side and deserts emerging on the other. As more and more people seek food and water, farms and aquifers in many regions of the world cannot produce enough to meet the demand. More and more people suffer. More demands on more resources that sustain life put a tighter squeeze on the most fundamental resources.

Fresh air, safe drinking water, nourishing food in sufficient quantities, uncontaminated farm land, robust forests, fishing waters, and other resources we need to survive are all, in one way or another, hitting the limits of their renewability. Exposed to climate change and increasing concentrations of toxic matter in the air, water, and soil, humans and other living things are experiencing a tight squeeze indeed. To add insult to injury, “the traditions that keep our cultures together,” as The Natural Step founder Dr. Karl-Henrik Robèrt poignantly says, “are getting weaker and weaker.”<sup>4</sup>

## **Finer Focus**

Never before have humans had to face such a complex ultimatum. When we talk about the future of life on our planet, we have few examples or guidebooks to consult for knowing *what to do, how to do it, who to be and become*. The blueprints for sustaining life on this planet are limited, yet a number of positive cases from around the world allow us to feel optimistic and inspire us to move in a sustainable direction.

Take, for instance, the Republic of South Africa and the challenges it faced when the rest of the world resolved to boycott its products and tourist spots. Coordinated international action put its future at stake. Being banished from the world economy would surely ruin the national economy and provoke profound social upheaval. What became clear for most South Africans was that a more just, democratic and sustainable system of government was essential to replace the tyranny of the country's official policy of racial segregation, known as apartheid. Although a country is not a planet, the changes taking place in South Africa are instructive as we consider sustainability from the point of view of social and economic transformation.

### Stories and Taking a Stand

We can benefit from the experience of South Africa by incorporating some of the strategies used to prompt its transformation. One such strategy was the “story” or scenario development. Economist Pieter le Roux, began planning a conference in 1991 on the economic crisis in South Africa. Following an inkling that the timing was right, he employed the scenario technique futurists had been using for a decade or so, in which they made up alternative future stories.

The value of stories is threefold. First, since we cannot predict the future, creating two or more scenarios about the future allows us to be better prepared for inevitable changes and surprise events. Stories empower us to ask “mindful questions,” and anticipate, detect and make sense of significant developments as they unfold. The second value of stories is their power to create common mindsets and language to raise the quality of conversations. Finally, stories enable us to broaden our perspective about what is possible and open us up to alternative futures without carrying our baggage from the past. They challenge our visions to be bolder, clearer, more creative, and more flexible.

Le Roux gathered a team of twenty-two diverse individuals to make up stories of South Africa's future. The participants met at Mont Fleur near Stellenbasch in September, 1991. Representing the political spectrum, they were to keep their sights on the long-term economic prosperity of South Africa as a whole. They were not allowed to focus on specific political problems or their political opponents. Their objective was to look broadly “at what will work—or fail—in the long run.”<sup>5</sup>

The stories they made up about the future economy of their country were given safe nonpolitical names, names of birds, although the stories themselves were political:

- *Icarus* symbolized “Boom and Bust.” The economy goes on a rapid ride and then crashes without any infrastructure to support the transition
- *Ostrich* stood for a worsening economy with escalating violence, repression and force, and the leaders sticking their heads in the sand, hoping reality will just go away. Social, political, and economic conditions get worse and worse. The government is incapacitated, the economy poor, society full of unrest
- *Lame Duck* represented a long and wishy-washy transition
- *Flight of the Flamingoes* exemplified everyone taking off together. They take off slowly but as they fly high, they fly together, and they fly sustainably

Naturally, everyone on the team—and later nearly everyone in the country—was partial to the Flight of the Flamingoes. That story had the most successful outcome for everyone as well as for the economy. Thus, the team created necessary conditions for take-off so that there would be a balance between social reconstruction and acceptable economic growth.

Politically, there had to be a culture of justice, a break from authoritarianism, a bill of rights, proportional representation, and citizen participation. Socially, there had to be a delivery system for social services, economic growth that helped everyone, a fair redistribution of land and resources, a reduction in violence, and a revitalization of education and training, nutrition and public health, and empowered women. Economically, they were not looking for a *free-market* approach but rather a *market-oriented* economy, monetary and fiscal discipline, and sufficient exports and tourism to enhance their initially sluggish economy.

These conditions would enable the country to have viable choices and to take meaningful actions. Yet, they warned the public that special interest groups—like the right wing, alienated youth, a corrupt bureaucracy, trade unions, and business interests—might still prevent the take-off.<sup>6</sup>

At about the same time as these Mont Fleur stories were being developed, Nelson Mandela, still in prison but soon to become South Africa’s president, shared his awareness that “in any liberation movement, it is as important to liberate the oppressors as it is to liberate the oppressed. The oppressors have to shut down their hearts, their access to their own spirit, and their own humanity in order to hate. And because of that, they are as much in prison as the oppressed.”<sup>27</sup>

Mandela “took a stand for the liberation of all races, all people,” according to Lynne Twist, co-founder of the Hunger Project. When Mandela did so “he created an environment that elevated everyone’s thinking and action.” This included Mandela’s familiar adversary, F. W. De Klerk, then president of South

Africa, who “opened up to profound dialogue.” In Twist’s opinion, “this shift from an environment caught up in ‘positions’ to one inspired by a ‘stand’ was central to the miracle of the end of apartheid.”<sup>8</sup>

The combination of Mandela’s stand and the Mont Fleur stories, which were publicized on radio and television, billboards and newspapers across South Africa, created a new consciousness for nearly *all* the people of that nation. This new consciousness gave people the courage to speak out about the atrocities they had experienced or witnessed as well as the ability to take a stand for forgiveness so poignantly embodied in the South African Truth and Reconciliation Commission.

While South Africa has not had a completely smooth transition from apartheid, the first three stories—Icarus, Ostrich, and Lame Duck—have not played out because people became aware, made choices, developed skills, took meaningful action and cooperated for change. The Flight of the Flamingoes with its economic promise has inspired an amazingly peaceful, sane and humane transition. With the deliberate consent of the nation, *these stories worked*. People took a stand to cooperate and co-create the Flamingo future. Through the South Africans’ remarkable stand, we are able to envision more clearly a sustainable and just future for everyone on Earth.

Other stories and stands for the future of life on our planet and for the end of violence—of all kinds—are also emerging. One stand in particular has impressed me sufficiently to detour my life’s path so that I could write this book. It is that of Swedish cell scientist and cancer doctor Dr. Karl-Henrik Robèrt whose compelling vision of a future where human needs are met worldwide has made a hugely positive difference particularly in the business, public health, and government sectors. He received, on behalf of The Natural Step, the 1999 Millennium Award for International Environmental Leadership by Global Green USA—the American Affiliate of Green Cross International of which Mikhail Gorbachev is president. Robèrt also received the distinguished Blue Planet Prize in 2000. Considered by many the equivalent of a Nobel Prize, the Blue Planet Prize honored Robèrt “for scientifically laying out the systems perspective needed to plan strategically for sustainability and for changing the environmental awareness of businesses, municipalities and others.”

The story Robèrt tells inspires people from all walks of life to take a stand for a sustainable and just future. It is the story of integrity and optimism, deep caring and compassion, and extraordinary insight and vision. Once you know The Natural Step story, you will see that we can easily endorse Nature’s Ultimatum, clean up our record, enjoy well being, obtain economic security, and become the highest and best of who we are as a species.

The obstacles are still daunting but a positive, just, and sustainable future now looks far more possible. As more and more people choose to fuse The Natural Step principles into their lives and work, we better the odds and lower the risks. Co-creating a sustainable future just may turn out to be the most fulfilling and meaningful activity of our lives.

### The Resource Funnel

To fuse The Natural Step Framework into your own mindset, look first at the overarching dilemmas our civilization faces through the lens of the resource funnel. When I first saw Dr. Robèrt draw his funky giant funnel on the whiteboard and explain humanity’s complex predicament with four or five Magic Marker strokes, I was skeptical. It seemed too simple. How could four or five roughly drawn lines possibly explain humanity’s immense dilemma?<sup>9</sup>

The funnel was turned on its side, the wide-end to the left. (See Figure 1-1). The side of the funnel with the line drawn from the top downward represents our declining resources. “We are *systematically* turning resources into waste and

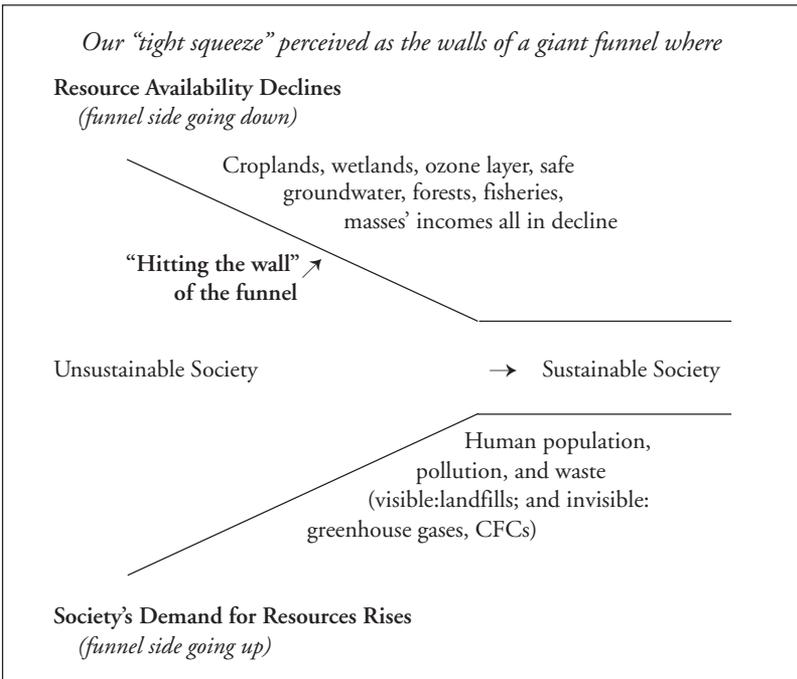


Figure 1-1. The Resource Funnel

pollution,” Robèrt asserted and then paused for us to absorb the words he’d spoken. Wow! I had a cognitive upheaval realizing what he said.

“Systematically” is right. Whether or not we want to admit it, our industrial civilization *is* methodically, step-by-wasteful-step, using up greater amounts of our natural resources—and at a faster rate—than any previous civilization. Some chemical form of these resources eventually ends up in landfills or as pollution in the water we drink, in the soil where we grow our food, and in the air we breathe. That is how our present industrial society operates. Resources in, chemical waste out.

Humans today have been exposed to more chemicals in the last fifty years than in all the rest of history combined. To discern that we are doing this to ourselves by design, systematically, stops us in our tracks. Everyone knew Robèrt was telling the truth, in spite of the fact we may never have thought about resource use in this way before.

Robèrt is a remarkable coach. To shift another’s perspective, as he had done with us in that moment and with thousands of others since he founded The Natural Step in 1988, is a skill he has used often and with great success. It was obvious from the sparkle in his eye that he enjoyed the coaching role as he observed our attraction to his explanation of the basic framework of The Natural Step.

Returning to the whiteboard after making sure we had digested the point, Robèrt then declared: “We are now seeing a decline in all living systems. The Earth’s capacity to provide resources is systematically decreasing.” Ouch. So here we are systematically using up resources and turning them into waste while systematically reducing Nature’s ability to produce them. Not a pretty picture and definitely not one we enjoy thinking about. It’s easier to ignore it.

Robèrt went on to explain that these living systems provide biosphere “services”—services humans are not capable of duplicating, such as clean water, healthy air, energy, and biodiversity that fuel our lives and livelihoods. Biodiversity is “the full variety of life on Earth and all the processes and interactions that sustain it.”<sup>10</sup> The quality and quantity of fisheries, forests, topsoil, and other living systems are all in decline.

*Thousands of scientific studies offer supporting evidence for these trends, we all knew.* Still, the funnel forced us to put the total of these declines together and consider what they mean for our shared future. After all, our lives and livelihoods depend on these natural services more than we are willing to acknowledge. The downhill line also painfully represented the decline in per capita incomes and quality of life for a growing number of the people in the world.

The line drawn from the bottom upward to the neck of the funnel represented basic human needs and society's demand for resources. "Today [1997] there are almost six billion people in the world. Increasing numbers of people and their actions are placing an increasing demand on resources," Robèrt said without hyperbole. There was a mere pause for us to soak in the *implications* of our crowded planet.

This upward line also represented our affluent way of life and our addiction to shopping. Both consumers and consumption are increasing worldwide.<sup>11</sup> "And technology is making us more labor efficient but is increasing the throughput of resources," Robèrt said. "Throughput" is *putting raw resources through* a process, converting them to products... and waste.

The "Resource Availability" line drawn from the top down to the neck of the funnel also represents our life-supporting systems such as croplands, wetlands, the protective ozone layer, forests, fisheries, and groundwater. Simultaneous to a seemingly unstoppable population growth, we have lost, in this century alone, one-third of the Earth's farmland. Many of these farmlands have turned into urban sprawl. Other farmlands have been abandoned because they became deserts or dams, the climate changed, or the soil became uselessly eroded or too salty because of over-irrigation. In far too many cases, the land simply became nutritionally exhausted, depleted after years of being plied with chemicals in the form of herbicides, pesticides and synthetic fertilizers. Repeatedly, the topsoil blew away.

While industrial agriculture wore out the land, industrial fishing overharvested the oceans and industrial cities used the open seas as garbage dumps, leading to the extinction and decline of fish and other marine species. Similar abuses resulting from human activities have led to the decline of the other life-support systems we all need for survival. The funnel shows us all of this in an unforgettable, graphic form.

We seldom spend time thinking about what all this means for our civilization, much less our personal well being and that of our offspring. It is painful to think about, overwhelming perhaps and far easier right now for us to pretend it is not happening. Besides, we rationalize, technology will surely save us in the nick of time.

"Appropriate technology" will play a major role, yes. Yet, many other technologies and the unbridled quest for wealth, as we will see in Chapter 5, are among the factors that got us into this tight squeeze in the first place. The funnel metaphor dissolves our unexamined and ill-conceived assumptions. It forces us to pay attention to the big picture. It encompasses the immense pres-

asures exerted on our ecological, social and economic foundation. Who with an open mind can deny this powerful metaphor of current reality?

Before any of us can escape from this tight squeeze, it will be imperative that we pay full attention to our shared dilemma. It will be essential that you make your friends and family aware, too. Indeed, *millions* of others must become aware, make sounder choices, collaborate and take meaningful action.

Gloria Flora puts it plainly: “If Nature announced it was putting economic and health sanctions against us, we would all jump up and start talking about what to do. In reality, Nature’s announcements—catastrophic storms, depleted ozone, dying habitats, extinction, increasing cancer rates, and so forth—are ignored.”<sup>12</sup>

Simply sitting down with a friend or family member one Saturday morning at the kitchen table and sketching this funnel on paper, while describing what it means for our future, can be a compelling opening for a dialogue about sustainability and coaching around The Natural Step Framework.<sup>13</sup>

### Molecular Garbage and Waste We Can See

Not only is the demand for resources increasing, waste is also mushrooming. We all know about visible garbage and overflowing landfills. We can see how solid waste proliferates. What most of us are not aware of, however, is the waste we cannot see accumulating in the atmosphere: *molecular garbage*—invisible forms of waste like greenhouse gases and chemicals that ruin our ozone layer. In fact, this invisible molecular garbage presently accumulates faster than visible waste. Because they are increasing, both “waste we can see” and “molecular garbage” belong beside the upward wall of the funnel.

The amount of carbon dioxide—an invisible molecular waste and presently the most troublesome greenhouse gas—accumulating in the atmosphere has dramatically increased since the advent of the Industrial Revolution. From the arrival of human beings on the planet until the end of the eighteenth century, the concentration of carbon dioxide increased by about one (1) part per million every 400 years. Between 1800 and 1970, it began rising about one (1) part per million every four (4) years or 100 times as fast. Since 1970 it has risen to another part per million every eight months!<sup>14</sup>

What surprises most people is the reason for the increase in waste: both visible and invisible wastes are collecting because of *our linear way of life*. If we lived and worked in harmony with the *cycles of Nature* our waste would find its way back into society or Nature to be reused or metabolized, respectively.

Even more surprising is just how perilous waste can be: “As we busy ourselves with tearing down more than we rebuild,” Robèrt says, “we are racing

toward world-wide poverty in a monstrous, poisonous garbage dump. The only thing that can save us from the consequence is the restoration of cyclical processes, where wastes become new resources for society or nature.”

### The Good News

We do not have to go back to living like cave men and get rid of modern conveniences. We do, however, need to keep modern conveniences out of the waste heap. We also need to keep by-products fabricated during their manufacture out of the waste stream. In fact, we need to eliminate waste.

One example of an effective cyclical process is sending our old appliances back to the company that made them in the first place. There they can be taken apart, reconstructed or recycled. Not only does this keep the product out of landfills, but in the long run it saves the manufacturer money because, as basic resources become rare, they will increase in price. As a bonus, these savings may be passed on to the consumer.

This approach, known as *extended product responsibility*, will force industry to do “Life Cycle Assessment,” designing the product with recycling and reuse in mind. Manufacturers will no longer be able to build in obsolescence. Instead, “built-in restoration” will become the standard. It is happening in Europe now, due to new—and controversial—laws enacted by the European Union. Paul Hawken, Amory Lovins, and L. Hunter Lovins document many profitable examples in *Natural Capitalism; Creating the Next Industrial Revolution*.<sup>15</sup>

Another means of cycling wastes encourages “co-location,” locating two or more particular factories adjacent to each other. The waste products of one can be utilized by the other and vice versa. For example, Factory A produces waste heat that next door neighbor Factory B utilizes as free energy. Factory B produces a chemical by-product that Factory A would normally have to purchase. Both factories end up saving money while also being better environmental citizens.

We also know this concept as “Waste = Food,” where the waste of one industry can be “fed” to another, rather than dumped into a landfill or elsewhere. The idea is to keep waste and pollution from accumulating in our air, water, soils, and food. Co-location can be a competitive advantage for businesses primarily because they no longer have to spend as much on materials, transportation, and energy. Eventually, any industry producing waste that cannot be re-used for the benefit of society will “hit the wall” of the funnel, just as the proverbial buggy whip factories did in a different time and context.

It is now clear from the funnel metaphor that as society expands in population and demands more resources to support the teeming billions of people,

at the same time the potential to meet those demands is weakening. Robèrt has put it this way: “It’s as if we are entering deeper and deeper into a funnel with the margin for action becoming narrower and narrower.”

If we continue to ignore Nature’s Ultimatum, the walls of the funnel will eventually crush us—our economies, our health, and our well being. The funnel metaphor helps us see that all of humanity, more waste and fewer resources are being squeezed into the narrow neck of the funnel. Moreover, getting through it is going to be one tight squeeze. Unless...

The good news, as you will see in the rest of this book, is this: we *can* transform this seemingly impossible situation. In the language of metaphor, all we have to do is open the walls of the funnel and move the sides further apart. In real life that means we must change, as societies, and as individuals.

First, we must understand the natural world in order to shift our lives and our work to be in harmony with Nature’s cycles. Next, we must understand human and social systems and their links with the natural world, such as how society’s economic or agricultural systems can embrace the laws of Nature so that we may all thrive. We need to understand the differences between a linear consumer-driven lifestyle and a cyclical lifestyle. We need to understand the present inconsistencies between declining public health of the many and the enormous private wealth of a few. Then we need to come to consensus on how to close the gaps, how to enact solutions.

Finally, since knowledge and understanding are not always enough to launch us into action, we need to explore what else influences bringing about a sustainable society. What actions will open others’ perceptions? How can we shift unsustainable attitudes and values? What are the relationships among these conditions and basic human needs, power, ethics, and reverence for life? How, indeed, do we pursue strategies that lead to expanding, rather than squeezing, the neck of the funnel?

### Individual Responsibility

Part of the answer to the above questions involves educating, encouraging and coaching others to shift their perspectives, attitudes and values. We, as individuals, must learn how to grow and flower in order to be examples for others. This sometimes requires change at the personal level.

There are two general types of individual changes:

- *Change on the inside.* This sort of change, where we are heart-centered, coming from the highest and best of who we are, is an inside job. Part II of this book provides particular ideas for making and sustaining this major shift. We can find inner peace and fulfillment, not from

materialism, mindless shopping, throwaway things, and “having” but rather from life, nature, health and the sheer joy and meaning of being and becoming. Through community and inner reflection, we can find the insights, joy and strength to shift from linear to cyclical living.

- *Change on the outside.* The change to sustainable and nourishing behavior and actions, which are evident to the outside world and often set examples for others to follow, will require that we have changed on the inside first. Then we must be mindful of the congruence between our inner self and the evidence in our external lives indicating we are taking a stand for sustainability on this planet. Our actions will be in alignment with the knowledge that there will be, among other things, increased pressure on the capacity of the ecosphere to metabolize waste, to withstand more births—and more extinction, and to absorb greenhouse gases from our antiquated transportation systems.

You may find yourself challenged by such questions as:

- What actions can you take this week to cut your waste dramatically?
- What would it look like in your life to reduce the population growth or species extinction?
- How can you be a catalyst to help reduce greenhouse gas emissions at both the personal and community level?
- What will it take for you and your community to navigate your way through the treacherous funnel and its narrow neck?

While these queries may seem daunting right now, by the time you take part in the Coach Five Project explained in Chapter 12, your confidence and skill-sets will have developed to the point where you can readily invite others in your own community to co-create solutions to these “big leap” questions. A livable world starts at the local level or not at all. The local level is where sustainability will either fold or unfold, prevail or fail.

## Farewell Footprint

Even if you become enthusiastic about The Natural Step Framework and are inclined to take personal responsibility to do your part, you might wonder: Is it too late? How much time do we have? What happens if we do not honor the Earth’s cycles and living systems? What happens if we do not begin to live more sustainably?

Using the funnel as a metaphor yet again, Robèrt says that sooner or later our businesses and communities around the world “will hit the wall.” That is, unless we rapidly shift from our linear way of life to a cyclical orientation, it is a race against time. Certainly, a motivating factor in this race is the Nemesis Effect, so named by the highly respected World Watch Institute to capture the cruel essence of the “tipping point” when unexpected interactions tip the balance.

One thing is for sure: the laws of Nature are preeminent. They will prevail over the laws of commerce and of civilization. We have two choices: adapt or risk extinction; open the walls of the funnel or hit the wall. For our civilization to make it through the narrows of the funnel “in time” it will take *full awareness* of a critical mass of human beings. To adapt, we will have to honor the limits of the ecosystem in which we live. In addition, we will need to adapt our social and economic activities to Nature’s Ultimatum. Faced with limited choices, we will need a special delivery system.

Seminars and workshops have delivered The Natural Step Framework to thousands of people, and they will continue to reach thousands and thousands more. We, however, need to reach hundreds of millions of people. That is where the tool of coaching emerges as an ideal delivery method.

Coaching evokes the highest and best of who we are. It spurs us to action. It can be carried out easily in group settings, over the telephone, via E-mail or one-on-one. Coaching helps us connect with each other at a heartfelt level. Coaching encourages us to take a stand, meet our needs, upgrade our values and be pulled by a compelling vision. Indeed, coaching is a catalyst for arousing full awareness. Coaching others to coach others to coach others about The Natural Step Framework *will* speed up our common task of “cleaning up our human record.”

In the spirit of the literacy movement where the catch phrase is “Each One, Teach One,” our motto can become “Coach Five and We Thrive.” The idea here is that you will combine forces with five others—friends, family members, co-workers, fellow students, or neighbors—to learn the strategies outlined in this book.

When each of you is confident of the materials, you and your friends will each start a new group and share your spirit and a few hours a week coaching them on the framework and strategies described within these pages. Presumably, the members of subsequent groups will be sufficiently inspired to go forth and start new groups as well. The motto then evolves into “Coach Five, They Coach Five, and We All Thrive.”

Will a critical mass of us be spunky enough to collaborate on this grand global coaching project straightaway? By spunky, I mean high-spirited, daring, and energetic. Will we reach our objective “in time?” Of course, no one can predict the thresholds or the precise time lines, making the “in time” factor a bit of a stretch. Still, there is a good chance this approach—the marriage of The Natural Step Framework and Life Coaching together with the multiplier effect of the Coach Five Project—will make a vital difference between a grim future and one we ordinary people can celebrate.

It is a bright prospect in a dark pit, an opportunity for a meaningful journey of personal growth, warm friendships, renewed community, and a healthy and flourishing future. Come, show up, connect and take a stand for a good life for all life and everyone’s great, great, great, great grandchildren. We just may make it through the narrows of the funnel with time to spare.

Let us now turn to the first leg of our journey where we will begin to adapt by gaining perspective on the root of our complex situation.

## CHAPTER 2

# Ultimate Puzzle

## Making Sense of Your Complex World

*The equations that governed the flow of wind and moisture looked simple enough, for example—until researchers realized that the flap of a butterfly's wings in Texas could change the course of a hurricane in Haiti a week later... In example after example, the message was the same: everything is connected, and often with incredible sensitivity.*

—M. Waldrop in *Complexity*

*The new physics tells us that the world itself is not hierarchical, but a kind of orderly chaos in which everything is independent—and interdependent. We can remember that the flap of a butterfly's wings here can change the weather hundreds of miles away. Everything we do matters. Everything we do has enormous power. We are a continuum of the past. Together, all of us make one hell of a butterfly.*

—Gloria Steinem

### Foothold

Co-creating a healthy and flourishing future is not going to be a slam-dunk. It will not be unusually easy, largely because we face an extraordinarily complex situation. So complex I call it the *ultimate puzzle*—code for the complexity of how the world works and also constantly changes.

Nonetheless, we are a “can do” species. We have the capacity to empower each other. We hold in our hearts the vision of possibility. And we possess the special human right of self-determination—a precious prerogative for humanity to assert. Together, we *can* do this. Especially if we keep in mind the insight of the wise old owl: “Do easy things as if they were difficult and difficult things as if they were easy.”<sup>16</sup>

Telling ourselves stories about our current reality—a relatively easy thing—helps us grasp the difficult things. After that, envisioning a positive story about our future—made less difficult by the South African feat described in Chapter 1—will make our trek together as easy as an inspiring adventure. In this spirit we will begin to explore how the world works, and more specifically in this chapter, how society, ecology and the economy have changed dramatically in the last fifty years or so.

The complexity of our lives and world has exploded by orders of magnitude over previous civilizations. To adapt to constant change and complexity, we need to recognize and grasp four underlying shifts<sup>17</sup> that have taken place in the last several decades:

- *From local to global.* An example of this shift is the tendency to build higher smokestacks or longer discharge pipes for moving waste further away from its source. This technique succeeds only in pushing problems away from the local area and carrying them elsewhere, creating new regional, or even global, problems. The habit of having a backyard chicken coop (local) died off as we gave our proxy for food self-sufficiency to industrial agribusiness (global)—a shift some of our parents lament.
- *From a few large sources to diffuse (widely scattered) sources.* Trends such as the spread of nuclear weapons, Chernobyl-type radiation fallout around the world, and the rising incidence of public mass killings and gun violence epitomize this shift. This chapter's stories of the tower sniping and the big brown cloud over Asia profile this shift.
- *From short delay to long delay.* An example of this shift from The Natural Step Curriculum is the deposit in filters or "safe" containers of hazardous and toxic substances that may not reach ground water for hundreds of years yet will eventually and inevitably leak.<sup>18</sup> The poisoning of the village well (a short delay) and a landfill leaking cadmium into the ground water over many years (a long delay) are additional examples of this shift.
- *From low complexity to high complexity.* This shift results from our increasing population and simultaneous rise of complex processes and systems. When civilization was less populated, it was relatively easy to trace the cause and effect chains. Now, however, the causal chains have become so entangled, they cannot be traced. The connection between cause and effect is lost. Complexity may accumulate over several generations, making tracing more difficult by the separation of time. One

example of this shift is endocrine disrupters leaching from plastics acting upon the reproductive organs of frogs, causing sexual deformities or other drawbacks that prevent the species from adapting and reproducing. The stories in this chapter illustrate aspects of this shift.

Complexity makes everything more complicated. Multiplying the causes multiplies the effects even more so, compounding our dilemma.

## Finer Focus

Since the earliest times, humanity has known challenges. As prehistoric hunters and gatherers, people faced the hardships of searching for water, shelter, nuts and berries, roots and edible plants, and wild game. They needed to protect themselves from wild animals and unfriendly neighbors. Later, as shepherds tending their flocks, people needed to locate water and safe grazing areas, search for simple food, and provide shelters and defense for themselves and their herds. Then as people began to live in villages, they depended on primitive agriculture—and fertile soil, fresh air, sun, and rain—for their basic survival. Compared to the complexity we face today, the difficulties of earlier peoples seem rather straightforward.

Before you think I advocate a return to the pastoral lifestyle, let me set the record straight. The genie is now out of the bottle. Even if we wanted society to revert to a seemingly idyllic way of living, it would be well nigh impossible. Human population growth, desertification, water shortages, and other dwindling eco-services already strain the Earth beyond its carrying capacity. We would probably need a dozen more planets just like ours to accommodate more than six billion people living like shepherds or indigenous villagers needing broad roaming territories to satisfy their basic needs.

Alas, with the exception of Earth, none of the planets in our solar system has the right combination of fertile soil, air, sun, and rain. In addition, space colonization beyond Pluto is out of the question for the foreseeable future. For now, we will have to bloom where we are “planeted.”

Today our situation is intense, increasing in social, ecological, and economic complexity every moment. Indeed, the World Problems Project has identified a sweep of world problems ranging from universal to detailed, exceptional, and very specific problems; a grand total of 12,203 entries in their encyclopedia for world problems linked by 113,330 cross-references. These include both well-publicized problems as well as little known problems, ranging from A to Z: “Abuse of Cultural Values” to “Zygomycota,” a threatened species. Now, that is complex.<sup>19</sup>

Understanding how the universe works has for centuries been the ultimate puzzle and the resulting theories have ranged from brilliant to batty. Yet, until recently, scientists were not able to explain the difficulty encountered in unscrambling an egg. Long before we get into that conversation let me “do easy things as if they were difficult” and tell a few stories to make the often-difficult complexity shifts easy, as the wise old owl advises.

### On Fresh Eggs, Ham, and Poison

Fifty years ago, the majority of people in the industrial world rarely put eggs on their grocery list because they, like my grandparents, gathered eggs from their backyard chicken coop. Today, in our industrialized society, raising chickens and producing eggs is no longer a popular backyard or small farm operation. With the appropriation of family farms by big agribusiness, the shift from local to global prevails. Countryside dotted with quaint farmhouses and old red barns has given way to huge factory farms and subdivisions.

It is next to impossible to find fresh eggs anymore. Not long ago, a major U.S. television network produced a documentary revealing how unsold store eggs are removed from stores for washing, put into newly dated cartons, and then trucked back to supermarkets, possibly several times. Where there used to be a very *short delay* in getting an egg from the hen to the table, there is now a *long delay*. Families rarely know how old their newly purchased eggs are.

Even the simple egg has become complex.

In another example, look at the damage wrought by Hurricanes Floyd and Irene in North Carolina where agribusiness concentrated hundreds of chicken, turkey and hog factory farms. More than two million industrial farm animals drowned or were otherwise killed by the storms. In the aftermath of Floyd, the major public health concern involved huge amounts of chemicals, bacteria, and other pathogens and toxins from livestock manure and remains seeping from the flooded operations into the ground water, wells, and rivers. Contaminated runoff killed millions of fish. Their rotting bodies led to more contamination, which threatened not only marine life in the rivers and bays, but also surviving wildlife nearby and human physical, psychological, and economic health.

The domino effect of this disaster alarmed public officials. Governor James B. Hunt, who had long allowed free rein in the growth of industrial agricultural businesses in eastern North Carolina, said after the disaster: “We need a strong economy for our people, but we cannot sacrifice the environment for jobs.” The same is true of any region with a high concentration of people and animals. During the autumn of 1999 finding fresh eggs—to say nothing of safe drinking water—was no easy chore in North Carolina.<sup>20</sup>

Simple stories represent one way to grasp the difficult as if it were easy. Recall the South African story in Chapter 1. You can probably think of stories from your own experience that show how we have shifted from low complexity to high complexity. This is important because the more complex society becomes, the higher the costs to maintain it.

You can look at nearly all our difficult economic, social, and environmental situations and notice several common factors. Our situations have evolved *from low to high complexity*. Everything does seem to be inter-connected at some level. Our difficulties used to be more localized. Now they have *spread regionally or even globally*. Where once there were *few* sources of pollution, for example, sources are now scattered or *diffuse*. There used to be a *short delay* between the origin of a problem and public awareness of the problem; now there are often *long delays*. An historical example of the *short delay* is the poisoning of the village water well by an outlaw, as my great aunt told the story. In that case, there were a couple of instant deaths before everyone figured out that a new clean source of water was essential, *pronto!*

Rather than a *short delay*, today there may be a *long delay* before the public knows that cadmium from batteries dumped in a landfill has leaked into the ground water. Before anyone realizes what has happened, there will probably be countless cancer deaths over many years and, since people move frequently, the cancer case histories will be spread over a considerably larger geographical region, making them hard to trace.

### **Weapons—Not a Separate Problem**

Even more complex than cadmium leakage is the proliferation of nuclear weapons. There used to be *few large sources* of such weapons when the U.S. and the Soviet Union presided over an exclusive nuclear club. Now nuclear weapons have spread or *diffused* across the planet, as Pakistan and India compete for regional nuclear superiority, and Iraq and Israel randomly threaten to undo the other.

A related issue resides in the unanticipated spread of a few large sources of society-induced radioactivity, illustrating another subtle way the ultimate puzzle outsmarts us. There are no separate problems. *Everything is connected.*

Not far from where I grew up radiation spread through the food chain, undetected for years. Back in the 1960s the U.S. Government carried out an underground nuclear explosion east of Carlsbad, New Mexico. Afterwards government employees put up fences and signs with that infamous radiation symbol, presumably indicating “stay out, no trespassing, danger here for 10,000 years.” Some three decades later, the fences and signs had fallen to the ground but a scientist found the location and measured the radioactivity at the surface.

The site was still radioactively contaminated... and, guess what else... beef cattle were happily grazing over the entire area. Who knows where all that “hot” meat ended up—in your supermarket, perhaps?<sup>21</sup>

In eastern Washington State nuclear waste from the Hanford Nuclear Reservation (local) is leaking.<sup>22</sup> Some of the radioactive waste has reached the groundwater and is moving in a plume toward the Columbia River. Along its path, the radiation contaminates wells. When it reaches the river, it will contaminate the trout and other aquatic life. When it reaches the ocean it will spread with the currents and continue to contaminate life forms, making the shift from local to global.

Apparently, the policy makers and operations experts at the Atomic Energy Commission and the Pentagon were not too concerned with isolating the radiation. They were accustomed to rationalizing countless “separate, isolated problems.” Although their salaries were paid with public tax monies, the public will probably never know how toxic and vast the complex mess turned out to be—a mess they created from sea to shining irradiated sea.

Unfortunately, there has been little progress made in handling leftover radioactivity and disposing of radioactive waste. Because no safe disposal method may exist, nuclear waste is a huge, highly complex issue, going well beyond the scope and space of this book.<sup>23</sup>

We are becoming more aware, though, of how the world works and how everything we do matters and has consequences—at times outrageous consequences. We now know an experiment anywhere on the planet is no *separate* problem. Small causes can have enormous consequences. Scientists, as this chapter’s opening quote suggests, call this the butterfly effect.

### **The Tower Sniper and the Militia Mentality**

Besides growing ecological and technological complexity, the social sector has also undergone complex shifts in the last few decades. A particularly poignant example comes from the arena of generic weapons and gun violence, which has also mushroomed.

When I was five months pregnant with my daughter, she and I almost became statistics in the first one-man public massacre in United States history. Just before noon on August 1, 1966, a sniper climbed to the top of the tower overlooking The University of Texas campus in the otherwise peaceful college town of Austin, Texas, and senselessly started shooting human targets.

That day, I was in the tower building. With the blast of the first shot, I turned to the graduate student in the carrel behind me and jokingly said, “Sounds like someone is dropping cherry bombs from the top of the tower.”

He replied with an adrenaline rush, “That’s no cherry bomb. That’s rifle fire. Get away from the window. Now!” As three more shots exploded, we rushed into the library stacks with others and huddled together in extreme fear.

Only moments earlier I had decided against going across the West Mall to the Co-op to buy more index cards. My sack lunch appealed more, so I stayed inside. A fortunate choice, because by mid-afternoon, forty-five people had been shot around the campus. Among the casualties were several people on the West Mall. We later learned that the sniper had killed his wife and mother the night before, bringing the total dead to sixteen. He had purchased hundreds of rounds of ammunition and extra weapons at a gun store near the campus the morning of the carnage.

Gun-toting, camouflaged National Guardsmen who came into our building (through a secret tunnel according to rumor) gave us little comfort. Their eyes flickering with battle excitement, they warned us to stay away from the windows. They also warned us not to go into the hall or to the restrooms lest they accidentally shoot us. Worse yet were the “citizens” who brought their own guns to the campus to “help.” Some of them were shooting almost as frequently as the sniper making friendly fire an additional hazard.

When the sniper was killed and the shooting finally stopped, the radio announced the name of the sniper: Charles Whitman, student. I almost collapsed from shock! Charles Whitman had been in my home, not once, but at least twice that I vividly recalled. The first time he dropped by our married student housing complex with a neighbor to invite my husband—who declined—to an organizational meeting of the “Minutemen,” a militia group forming in Texas. The other occasion was when Whitman tagged along with a group of football players for tutoring in math.

What was especially memorable about those two events was how this clean-shaven, crew cut young man tried almost too hard to model polite manners. Much to my bewilderment, Whitman insisted on calling me “Ma’am.” I was twenty-three. He made me feel matronly. I sensed something was off. It turns out that something was way off. A genuinely civil human being would never be able to wheel a hand truck with a footlocker full of guns and ammunition onto an elevator, go up twenty floors to the top of a tower and start randomly killing people.

This horrific bloody mass murder by a former Marine remained a mystery—part of the ultimate puzzle—until years later when I learned more about the gun lobby and the militia mentality. It was then that I recalled that in 1966 the FBI had interviewed my ex-husband about Whitman’s militia tie to the Texas Minutemen.

In the language of complexity, this tragic event pushed us away from order over the edge into chaos. It marked, as the new physicists put it, an “emergence.” It was an emergence of a new complexity facing society: the modern militia mentality.

Like the butterfly’s wings contributing to the rise of a hurricane hundreds of miles away, the tower sniper event swayed the historical course of the militia mentality and subsequent mass shootings. Everything is connected, often with incredible subtlety and susceptibility.

From an historical perspective, The University of Texas tower massacre opened a new era of public mass murder in the United States. At the time, most of us saw this as an aberration, some tragic quirk of history, a local fluke surely, not a spreading idea or dysfunctional meme. Yet, since that odious day, we have witnessed the spread—from a few large sources to diffuse—of highly publicized massacres and copycats. The ones we remember most vividly now include Timothy McVeigh and the bombing of the Oklahoma Federal Building, Columbine High School in Colorado, and, of course, the very public mass murders of September 11, 2001, in which airplanes became missiles—weapons of mass destruction.

### **A Fish Story and a Big Brown Cloud**

Two additional stories illustrate how the character of our social, economic, and ecological problems has changed dramatically in three short decades. The first story comes from an incident I experienced in Brazil in 1971 and represents a single local source, a short delay, and relative low complexity. The second one shows the shift to regional or global, diffuse, a long delay, and high complexity.

In Pôrto Alegre, capital of Rio Grande do Sul in southern Brazil, I awoke one morning to a nauseating stench. Those of us who opened the windows just made the situation worse. We soon discovered that the odor was coming from the Guaíba River a couple of miles away. Overnight and without warning, a stretch of the river had become a massive floating grave of dead fish.

The culprit lay upstream: a new European paper mill that had tried to set up business in some dozen countries but had been rebuffed by all except Brazil. Now we knew why the paper mill had been unwelcome elsewhere. Apparently the waste from the paper mill’s activities was systematically dumped into a “sewer” that led straight to the river, destroying the life-sustaining elements the river had always provided its aquatic inhabitants.

While the clean-up crews buried the fish carcasses and the authorities dealt with the paper mill operators, we, along with our neighbors, were merely

uncomfortable for a few days. Other families, perhaps thousands, who depended on the river for their livelihoods and even their next meals, fell into economic ruin. The river, unable to sustain fish and other marine life in that locality, had to heal. Meanwhile, the ecological devastation had devastating social and economic effects, especially on the poor of the region.

Fast forward a few decades and we now have reports and articles appearing quite frequently that resemble the Pôrto Alegre fish kill, except that these newer mishaps are no longer simply local events. They have changed from local to global. Typical headlines, in this regard, announce “South American Pesticide Found in Inuit (Eskimo) Breast Milk Near North Pole,” “Whale Washed Ashore Disposed of as Toxic Waste,” “Mother’s Milk Contains Antiflammables Used to Prevent Fires in TV Sets,” and “Environmental Refugees with No Place to Go.”<sup>24</sup>

Like a huge recurrence of the blanket of stench from the fish kill in the Guaíba River thirty years ago, the second story is about the newly formed colossal brown cloud now hovering over much of the Asian continent where half the world’s people live. Up to five kilometers thick, the hazy cloud apparently forms during the tropical dry season and blows out to the Indian Ocean during the winter monsoons. Containing “soot, sulfates, nitrates, organic particles, fly ash, mineral dust, and high concentrations of gases such as carbon monoxide and sulfur dioxide,” the cloud is sufficiently darker than clouds over North America and Europe to worry scientists.<sup>25</sup>

Paul Crutzen of the Max Planck Institute, winner of the Nobel Prize in Chemistry for his work on strategic ozone depletion, and V. Ramanathan of Scripps Institution of Oceanography at the University of California in San Diego lead the Indian Ocean Experiment. It involves 250 scientists from the United States, Europe, and India. In a US\$25 million field experiment in 1999, they took atmospheric measurements from ships, aircraft, satellites and ground-based instruments around the tropical Indian Ocean.

This huge brown cloud could have profound effects on human health, crop yields and rainfall patterns. Moreover, scientists fear the disruption of photosynthesis in marine plants, dramatically affecting the food chain and ocean life. The INDOEX researchers discovered that the haze, thousands of kilometers from its source, reduces sunlight reaching the Indian Ocean surface, by ten percent and an even larger percentage over the Indian Subcontinent. Particulate emissions from coal, burning wood, motor exhaust, and diesel fuel already contribute to 460,000 human deaths each year in the region.<sup>26</sup> The particulate emissions from the recent massive bombings in Afghanistan have intensified the problem.

Similar to the other examples described in this chapter, this last one is not limited only to society or only to the environment nor is it merely an economic story. This complex situation impinges on what people in the sustainability movement call the “3 P’s”—people, the planet, and profits—all at once.

Each story has links to some social factor, which in turn touches or influences an economic factor, which in turn affects Nature. Indeed, the ripple effects will be felt somehow, some place, just as our familiar butterfly’s wings flapping in Texas can affect a hurricane in Haiti. Our overall situation, with its 12,203 interacting world problems, has emerged as the ultimate puzzle. Furthermore, we ordinary people *can* untangle its complexity. We will “merely” have to adapt our thinking.

### The Devil in the Details

Whoever said “the devil is in the details” really had it right. Details trap and distract us, enticing us away from seeing the big picture. Key elements of the big picture include

- how the world works
- how everything keeps changing and has an effect on everything else
- how, if things stagnate and do not adapt to change, they die off or become extinct
- how everything seems to thrive on the edge of chaos—“the one place where a complex system can be spontaneous, adaptive and alive”<sup>27</sup>
- how everything is freely “self-organizing” within a complex dynamic system

More than 2,500 years ago, Heraclitus of Ephesus said “everything moves.” The new science of complexity agrees with Heraclitus. From 1984 until the early 1990s, George Cowan headed the Santa Fe Institute where a great deal of the new complexity thinking has emerged. For Cowan, one of the central issues in the quest for a healthy and prosperous future is how we adapt “under conditions of *constant change* and unpredictability.” Somehow, people have to adapt to continuous dynamic change. Cowan suggests: “if you add memory and accurate information from generation to generation—in some better way than we have in the past—then you can accumulate wisdom.... we can shape the future... we can exercise some kind of damage control. Perhaps we can get the probability of catastrophe to decrease in each generation.... if we can iterate day to day, and constantly do some course corrections, then we will help provide a somewhat better future for society than if we say, ‘Well, it’s all in the hands of God.’”<sup>28</sup>

The experts' approach to both individual and global problems, unlike Cowan's, has typically been linear, single-issue oriented, and focused on details rather than the overall complex. Examples of our single-issue approach, reports *The Encyclopedia of World Problems and Human Potential*, include "ozone, acid rain, 'health-for-all,' substance abuse, illiteracy, terrorism, and AIDS."<sup>29</sup> To adapt our thinking to constant change we need to think *beyond* single-issues. In addition, we must find ways of getting people on common ground, using the same terms while also being compassionate. The Natural Step Framework helps us in these respects. So does Life Coaching.

We have seen how inter-connected our world is. The complex web of life connects us with each other, the Earth and other living things in a non-linear pattern. When we use certain unnatural substances such as pesticides or plastics, the consequences often confound us. Their complexity may be cumulative over several generations, as in the case of endocrine disrupters and frogs mentioned earlier.

Frogs, in fact, "provide a good example of complexity and the difficulty of isolating causes in a linear way," says Pam McAllister of The Nature Conservancy of Washington State. "Amphibians worldwide are in decline, from a wide range of possible human-created causes including pesticides and other chemicals, increased UV radiation, climate change, habitat destruction," and targeted prey by humanly introduced predators.<sup>30</sup> Is it any wonder that addressing problems in a linear, detailed approach has failed to muster lasting, positive change?

Our fixation with isolating details of single-issue problems has blinded us to the whole. We have not grasped the complexity of our "shared ultimate puzzle." We forget about how complex everything has become. We do not remember that everything is inter-connected. We ignore the complex pattern within which our lives are interlaced and how everything constantly changes.

As long as we continue the habit of tackling one problem at a time, we are stuck in stagnation station, with no positive forward momentum toward a real overall, lasting, and most probably, unconventional solution. It is time to leave the details to the specialists and for the rest of us to adapt to change by seeing the world in a new way. The alternative may be extremely unpleasant.

## **Farewell Footprint**

In the spirit of adapting to constant change within our complex set of circumstances, burn the following shifts into your brain. Recall examples from your own life experience. Share the shifts and your own examples with your

friends and family. See if they, too, can come up with “stories” that reflect these shifts. Experiment with the idea of doing the difficult as if it were easy and the easy as if it were difficult.

The character of social, economic and environmental problems has changed dramatically

- *from local to global*
- *from a few large sources to diffuse (widely scattered sources)*
- *from short delay to long delay*
- *from low complexity to high complexity*

Of these four shifts, the long delay is the most troublesome. Due to complexity and delay mechanisms, the cause-effect chain is hard to trace many years later. It is difficult to know what levels of emissions, clear cutting, population growth, industrial farming, biotechnology, and so forth will be hazardous and when. By the time we recognize the hazard, the causal chain of events has disappeared. The damage has been done.

The CFCs that leaked from my air conditioner (and yours, perhaps) twenty years ago are just now damaging the stratospheric ozone layer, allowing dangerous ultraviolet light through to humans and other life forms. Earlier CFC releases have already wreaked havoc in the rising rates of skin cancer, especially in the southern hemisphere where the ozone hole is unmistakably present and expanding. Think of the irony of the ultimate puzzle in this example where people deliberately chose to stay cool inside, away from the hot sun. Nature’s laws prevailed, as air conditioner CFCs released decades before finally reached the ozone layer and literally ate holes in the shield that has for eons screened out the cancer-causing rays of the sun.

Because of this ballooning complexity, it has become futile to think in terms of “cause and effect.” Now our difficulties are more akin to systemic disease, in which the entire body’s immune system or endocrine system may be overwhelmed. Treating only the symptoms in such cases is like bringing your own canvas or recycled grocery bag when you drive your gas-guzzling SUV to the supermarket, to paraphrase activist Dennis Hayes. For a little while we may feel better for having taken some kind of action. Ultimately, your “good deed” is trivial compared to the carbon dioxide emitted from your fossil fuel powered vehicle. Your actions are more like Band-Aid approaches, fruitless, not meaningful or productive.

To understand the ultimate puzzle of our current complex situation, we need a different approach, an approach where we can see the whole and view

our difficulties as systemic. Only then will we move closer to understanding the source of our complex situation and be able to co-create new sustainable ways of adapting to constant change and complexity. It is to this approach that we now turn.

## CHAPTER 3

# Think Tree

## How Systems Thinking Empowers You Amid Complexity

*I think that I shall never see a billboard lovely as a tree.  
Indeed, unless the billboards fall I'll never see a tree at all.*<sup>31</sup>

—Ogden Nash

*Up to now much of the debate over the environment has had the character  
of monkey chatter amidst the withering leaves of a dying tree—  
the leaves representing specific, isolated problems....  
In the midst of all this chatter, very few of us have been paying attention  
to the environment's trunk and branches.... We must learn to deal with  
environmental problems at the systemic level; if we heal the trunk  
and the branches, the benefits for the leaves will follow naturally.*<sup>32</sup>

—Karl-Henrik Robèrt  
Founder of The Natural Step

When it comes to energy-transport systems everything is a tree.<sup>33</sup>

—Geoffrey West

### Foothold

In co-creating a healthy and sustainable future, how we *think* about the challenges facing us is critical. Our constantly changing and vastly complex world can make wending our way through life feel like pirouetting through a field studded with land mines. Hazards abound when we miscalculate our step, err in perception, or blunder because of our narrow perspective.

This chapter is about expanding our perspective and avoiding those land mines. The more familiar perspective, known as *reductionism*, reduces or breaks problems into parts. It is a linear way of thinking limited by the belief that the sum of the parts is equal to the whole. Entrenched as it is in examining details,

it remains useful in specialized situations. Now there is an urgent need for a different way of thinking to guide us into a future full of trees, not land mines.

Advocated by The Natural Step pedagogy, this perspective is called *systems thinking*, where the whole is *greater* than the mere sum of its parts. Shifting from the familiar to the new way of thinking, we will focus more on the whole than the parts; more on the principles than details; more on the context than analysis; more on relationships than objects; more on networks than hierarchies; and more on process than structure.

We shall also use a metaphor more appropriate and Earth-friendly than a minefield: the tree, representing the total system of Nature and Society. The trunk and branches represent the system's principles—fundamental, solid, and unchanging. The leaves and foliage represent details, measures, designs, and efforts that we align with the principles to keep the system operating effectively. After learning how to apply the system principles to our overall complex situation, we will be able to employ the systems perspective or, as I like to call it, the Think Tree Approach.

Rather than the parts or details taking center stage as in reductionism, The Natural Step Framework uses its principles to define the system—the whole of Nature and Society. Conveniently for us, only four scientific principles undergird the framework. Derived from the Second Law of Thermodynamics and the Conservation Laws (the Law of Conservation of Matter and the Law of Conservation of Energy), The Natural Step principles explain the workings of our physical world and can be stated in everyday language as follows:

- Nothing disappears
- Everything spreads
- There is value in order
- Plants create structure and order by using energy from sunlight

Presently I'll relate how a group of leading scientists used a consensus process to cull the principles, and how taking the systems stand and putting the principles to good use can sustain us. First, here is an instructive tale about our widespread opportunities for taking a stand to heal not only an ailing tree, but also our planetary home.

## Finer Focus

For five hundred scorching hot summers one remarkable tree has lived through extreme droughts, blue northers, lightening storms, and staggering tornadoes. The last in a grove of live oak trees known to the Tonkawa people

and their ancestors as the Council Oaks, the “Treaty Oak” has continually evoked a sacred reverence. Its name originated from the first boundary treaty signing ceremony between two recently arrived peoples: the European settlers and the Comanches. Located on a hill overlooking the Colorado River and about a mile southwest of today’s Texas Capitol Building, from early times it has remained the perfect spot for festivities and ceremonies.

By the 1920’s the Council Oaks were disappearing and the Treaty Oak property was on the market. A great campaign, waged mostly by women, convinced the public throughout Texas to be “patriotic” and preserve the Treaty Oak. Their efforts resulted in a 1929 American Forestry Association proclamation declaring this mighty oak “the most perfect specimen of a North American tree.” At the same time, the American Forestry Association added the Treaty Oak to its list of famous and historic U.S. trees—the Hall of Fame for Trees.

Ongoing public pressure finally obliged the City of Austin to purchase the small quarter-acre lot to “stand as a living and fitting symbol of the mighty state it has watched develop.” The park, though tiny by Texas standards, became a favorite site for June weddings, lover’s picnics, and school outings.

In 1989 a feed store employee named Paul Cullen attacked the Treaty Oak. He vandalized the tree by pouring a poisonous herbicide—Velpar—on the ground around the trunk. The tree began to wither and die. Its story spread worldwide. Ross Perot, the Texas billionaire who ran for U.S. President on his Reform Party ticket in the 1990s, wrote a blank check to underwrite the funding necessary to bring in experts to save the tree. Specialists from several states flew into Austin to administer intensive care. Children from many countries sent get-well notes. Meanwhile, Cullen, who claimed to be a miserably spurned lover, was arrested, tried and convicted of felony criminal mischief, and sentenced to nine years in prison for his crime.

Approximately two-thirds of the tree died, but after extensive efforts, masters of tree healing were able to save the remainder of the tree. Today, tourists, school children, lovers and others regularly stop by to pay homage to one of the world’s most celebrated trees

Not surprisingly, the Treaty Oak provoked worldwide attention. Crimes against Nature repel most people, especially tree crimes. Something in our collective consciousness tells us that trees play a necessary and vital role in our lives. They render products from fruit, nuts, syrup, oils and gums to fiber, building materials and paper. In their ornamental charm, they provide attractive, serene and inspirational landscapes satisfying our aesthetic and spiritual needs, and for some, the need to increase property values. In cities of steel,

glass, and asphalt, trees form an oasis luring birds and other wildlife, increasing the quality and diversity of life—and our sense of well being.

Trees create natural recreational retreats and play areas for children of any age and encourage urban dwellers to remember Nature. They offer shelter and natural pantries for squirrels, birds, and other living things while providing people with privacy; noise absorbers; lower utility bills from their insulation, windbreaks, and shade; as well as camouflage for ugly business activities such as mining, landfills, junkyards, and various dirty or otherwise unsavory industrial processes.

Trees also provide seldom-mentioned benefits that are essential to our very existence. Growing densely together covering large areas, they form forests that play an essential role in our weather cycles, moderate our climate, and act as the lungs of the planet by absorbing carbon dioxide from the air to form carbohydrates and provide oxygen for us (and other living things) to breathe.

Tree leaves help filter our air of allergens such as dust, pollen, soot and dangerous molecular garbage such as ozone, carbon monoxide, and sulfur dioxide. Falling to the ground in autumn, leaves decompose and enrich the soil while the roots help anchor the soil, preventing topsoil from eroding away under deluge of wind and rain. Trees curb run-off, keeping many harmful pollutants in the soil from being washed into streams, rivers, and other waterways as well as helping to renew groundwater stocks.

Besides these vital benefits, the tree presents us with a marvelous metaphor for systems thinking. Let us look upon the tree as a metaphor for the *total system of Nature and Society*. Rooted in the laws of Nature, the trunk and the branches represent the principles. We can depend on these stable, fundamental principles to prevail over time.

The leaves and foliage represent the details and actions that help us meet the principles and keep the system operating effectively. When we apply the principles to our overall complex situation, we are employing systems thinking. Compared with the previous mechanistic or linear ways of problem solving, this approach—the Think Tree Approach—has a far greater chance of protecting life on our planet.

### Taking the Systems Stand

The term “system” refers to a group of interacting, inter-relating, and interdependent elements forming a complex whole that is greater than the mere sum of its parts. The removal or manipulation from outside the system of any of the parts will change the overall character of the whole. What happens

in one part of the system affects every other part—often in surprising ways. Recall the butterfly effect in the previous chapter. A system can be as tiny as an insect’s respiratory system or as huge as the solar system.

Unlike systems thinking, the dominant thought process promoted by public education, the media, science and other major enterprises of our Western industrial society is linear. It demands that we add up the profits for the bottom line; draw a line from A to B; accumulate the most toys; list the factors in rank order; manage our time; analyze the details, use our left brain, and so forth.

Derived from reductionism, linear thinking is a concept that originated around 1642 when René Descartes, “the mentor of the Enlightenment” in E. O. Wilson’s words, introduced the idea that “the world is an assemblage of physical parts that can be broken apart and analyzed separately.”<sup>34</sup> Since its inception, reductionism has brought us some enormously valuable discoveries in science and medicine and will likely continue to do so.

There is, however, a controversy swirling about reductionism stemming from the tendency of its users to neglect the complexity of the big picture. Critics contend that modern policy makers, builders and developers, planners, specialists and experts tend to forget synthesis and integration, “tempered by philosophical reflection on significance and value,” as Wilson has written. Indeed, “the focus of the natural sciences has begun to shift... toward new kinds of synthesis—‘holism,’—if you prefer—in order to understand complex systems.”<sup>35</sup> That is good news, for we need both/and, not either/or. We need good reductionist science, as elaborated by Wilson and others, and we need systems thinking.<sup>36</sup>

Simply stated, the systems perspective can be defined as seeing the whole. Without this approach, it is difficult to understand how the overall system works. The inability to create solutions on a systems level is one of the major limitations of linear thinking. Mired in endless arguments over details, traditional linear analysts fail to see the impact their near-sighted innovations will have on the operations of the system at large, often reducing their efforts to industrious yet reckless folly. A prime example is the linear bio-engineering approach to genetically manipulating seeds and our food supply.

Without seeing the whole, we cannot very easily think clearly about how the overall system works. When we see the whole, we see the entire system, rather than certain parts. We also begin to see that many of our social and ecological difficulties have stemmed from linear thinking. When we see the whole, we escape from those endless arguments over details. We can ask better questions. We are empowered to launch practical decisions and meaningful actions in the real world.

As we noted in the last chapter, the devil is in the details. Repeatedly analyzing the details numbs and paralyzes us. Fortunately, a systems perspective emphasizes principles rather than details. Identifying the principles that underlie the functioning of a system expedites a solution-oriented approach. “Principles” refer to the ultimate rules that govern a system. In a traffic system, for example, the principles of stopping at red lights or driving on the right side of the road help define the system. If drivers take a position that they are going to ignore those principles, the result will be chaos, injury, and perhaps even death.

One of the outcomes of this shift toward synthesis has been cross-fertilization and the emergence of a common language between disciplines, often within the context of systems. With common language comes the ability to make better decisions for everyone’s future and less preoccupation with specialization, the details, the “leaves.” Systems thinking liberates specialists overly focused in their area of expertise to see the whole picture.

It is time to shift from a position “out in the leaves” to taking a stand for the whole system. Burn this into your brain: the linear way of thinking depended on the limiting belief that the whole is *equal* to the sum of its parts, compartmentalizing and fragmenting our view of the world. Linear thinking ignored how everything affects everything else. Systems thinking sees the whole as *greater* than the sum of its parts. It recognizes the interdependence of the elements and their contribution to the functioning of the whole. Systems thinking is a way of appreciating the world and its intricate web of connections. It propels us on a fascinating journey of healing for our planet and ourselves.

### Individual vs. Group

In 1988, the head of a cancer research department at the famous Karolinska Institute in Sweden watched an endless stream of worried parents coming to the hospital hand-in-hand with their cancer-sick children. Cancer, of course, is a disease of the cells. From his extensive knowledge of cells, this cell scientist recognized that each cell is a cosmos of life-events, governing life itself. One cannot negotiate with cells because they have their own internal laws, or system conditions. For instance, you cannot ask cells to process mercury—there are certain non-negotiable conditions necessary for the survival of a cell.

Yet, he observed, “all people, including decision-makers and national economists are constituted of cells. [As parents] the psychological torture these same people are all able to put up with, when it is about supporting their children into the future, is impossible to understand unless you have experiences of that kind yourself. Yet, *nobody* gives up, when it is about supporting their children.

And still we often say about ourselves, in the public debate, that we don't care about our children as long as we can make another buck. It's not true! People are wonderful. There is something else that is wrong (confusion, perverted drivers of our culture, etc.), but no shadow on people in themselves."<sup>37</sup>

Obviously, this medical doctor had great compassion for the parents who, *as individuals*, were committed to doing whatever it took to save their children's lives. He noticed a disconnect, however, when these same parents, *as members of society*, failed to take action to secure a healthy environment for the sake of their children's future. He searched for a simple way to present this and other inconsistencies to individuals so that, *as members of a group*, they might be motivated to act in ways that protect the habitat that supports all of us.

Pondering the life requirements of cells together with the distinction between the individual and the group, he conjectured that similar non-negotiable conditions or natural laws might be specified for the environment as a whole.<sup>38</sup> In that moment, the seed from which The Natural Step would grow took root in the mind and heart of Dr. Karl-Henrik Robèrt.

His curiosity galvanized, Dr. Robèrt began to search scientific libraries for the "internal" laws of the environment. Mostly he found endless debates over controversial details. One scientific paper argued that the problem arose because of lead increases in children's blood. Another held the problem was *synthetic substances* like pesticides, *rather than naturally occurring substances* like lead. Still another took the position that pesticides were the panacea allowing us to produce greater quantities of food for feeding the world's growing population. The arguments whirled in vicious circles.

Frustrated, Dr. Robèrt likened these debates to the trivial chatter of monkeys among the foliage of a dying tree, where each leaf represented an isolated, detailed problem receiving far more attention than it merited. Meanwhile, the environment needed intensive and systemic care: "very few of us have been paying attention to the environment's trunk and branches.... We must learn to deal with environmental problems at the systemic level," Dr. Robèrt urged. Indeed, very little had been published in the scientific literature that indicated agreement among scientists. Dr. Robèrt was, nonetheless, confident of one certainty: if we heal the trunk and the branches of the tree, the benefits for the leaves will follow naturally.

### Where Do We Agree?

Alas, Dr. Robèrt realized that the arguments would continue as long as each expert, like each parent, had only a piece of the puzzle and kept hanging out in the leaves. In the scientific debates he had researched, neither side was

looking at the tree, *the whole system*. With a leaf or two on one side of the argument, and few leaves on the other, the opponents cancelled each other out. An epidemic of contradictions resulted and the whole picture failed to emerge.

Dr. Robèrt yearned for a consensus on the requirements necessary for a healthy relationship between people and the environment. Before long, he had a dream of writing a paper that outlined a model for such a sustainable relationship, in which he asked: “What do we agree on?” His strategy included circulating and revising this paper as long as necessary to reach consensus. He sent it to approximately 50 scientific colleagues, asked them if they agreed with his model, and, if not, to suggest changes. The answers and opinions came back. He compiled and sorted the responses and sent out a new version of *What do we agree on?* Again the responses came in and he revised the paper, repeating the process a total of twenty-one times before he and his colleagues arrived at a fundamental agreement.

Remarkably, this agreement was more far-reaching than the disagreement; quite sweeping and comprehensive, verging on the radical. This final consensus formed the impetus for a social transformation impossible to contemplate until this point in history. Moreover, it has become the basis for The Natural Step Framework now used in nine industrial countries around the world.<sup>39</sup>

### The Consensus on Principles

Where did the scientists finally agree? To be sure, it wasn't in the details, but rather on several of the most basic scientific principles. To understand the first principles of consensus, we need to look at the Earth as a whole from a systems perspective. Imagine you are a Martian orbiting the planet slowly enough that you can get a fine view of Earth. What would you notice?

You would probably see a little cosmic dust and a few meteors coming into the system but not much else.<sup>40</sup> What you would observe leaving the system would be a few rockets, an occasional satellite, and a little bit of hydrogen from the atmosphere. Actually, we still have the same amount of “stuff” we started with 4.5 billion years ago. In other words, the overall mass of the Earth remains constant, making it a *closed system* concerning *matter*. In contrast, the Earth is an *open system* relative to *energy* because it receives light (energy) from the sun and emits heat energy in the form of infrared radiation into cold space.

Perceiving the Earth as two different systems—one closed to matter and the other open to energy—is another one of those burn-into-your-brain concepts crucial for understanding how the world works from a bio-physical perspective.

To help you remember this idea more easily, let's compare two vehicles: one powered by current energy from the sun and the other one from “ancient

sunlight,” or fossil fuels. The first car gets its energy from outside the Earth’s system, representing the *Earth as an open system*. The other vehicle represents *Earth as a closed system* and is one you probably remember from the 1980’s: the Volkswagen Rabbit, a car touted as Earth-friendly because it got fifty miles per gallon.

The Rabbit we drove ran on diesel fuel—refined from fossil fuels removed from deep within the Earth’s crust. Because the emissions we generated were not visible, it was easy to pretend that the fuel ceased to exist after combustion. Of course, that was not true. The *matter* constituting fossil fuels continues to exist, only in different form. When used, diesel fuel changes from a liquid form to invisible molecular garbage and the only place for it to go is back into the Earth’s closed system, which includes our air, water, and soil.

Thus, the first principle the scientists agreed on was *Matter and energy cannot be created or destroyed*. Nothing disappears. This principle echoes the Conservation Laws: the Law of Conservation of Matter and the Law of Conservation of Energy. Inasmuch as matter cannot be consumed, and considering that it does not leave the Earth, we have the same amount we started with and cannot run out of matter. *Nothing disappears*. Contrary to what you have heard, we do not have a consumption problem or an energy problem. Matter cannot be consumed (or used up), and we only use 1/13,000 of the incoming solar radiation. What then is the issue?

Matter and energy are always changing—everything disperses. *Everything spreads*. There is a general tendency in Nature for things to become disorderly, to degrade, to decay, like fallen logs. You know how a car can turn to rust but not the reverse. At least you cannot easily or without great expense turn rust into a car. Neither can you readily unscramble an egg.<sup>41</sup> That is because *matter and energy tend to disperse spontaneously*. This is the second principle the scientists agreed upon. A consequence of entropy, this principle underlies the tendency of everything in the universe to run down, to become more “chaotic,” disordered, or mixed up. This tendency is also known as the Second Law of Thermodynamics.

So far, we have said that everything spreads and nothing disappears. The only thing that can disappear is the quality or value of matter. As matter spreads, it loses its concentration, purity and structure—its “order.” Both biological value and economic value come from order. In other words, we find value and material quality in the concentration and structure of matter, and that is what we consume. Thus, the scientists embraced a third principle: *Material quality is in the concentration and structure of matter*. For example, gasoline is valuable because it contains order. When burned, its emissions still contain each of the

original atoms that were in the unburned gasoline. Now, however, these atoms have lost quality and order, and are no longer valuable. In fact, they have become a disadvantage—a negative value in terms of the air we breathe. Whatever we consume—gasoline, clean water, raw materials, resources—we are consuming order. Whatever activities we undertake, we are turning material quality and order into dispersed matter, or *waste*. The Natural Step curriculum translates this principle into ordinary language: *there is value in order*.

You may be wondering, if everything spreads and nothing disappears, why has the system not already run down. After all, we have been turning resources into waste for eons. Yes, logs rot. But, new trees also grow. How does that work? Is there a contradiction here? How has life been able to continue under the law of entropy? Rather than running down, more and more complex life forms seem to be emerging. If you are guessing that some other force, almost magically, must be restoring material order within our biosphere, you are on the right track. Take a moment and see if you can imagine what that force might be.

We have said that the Earth is a closed system regarding matter, yet it is an open system relative to energy. People tend to forget that the Second Law of Thermodynamics tells us that disorder increases in all *closed* systems. The Earth, however, receives light from the sun and emits heat into space, making it an open system where energy is concerned. This flow of high-quality energy from the sun counteracts the tendency of materials to decay because, miraculously, *plants* put that energy into service. Without the plants, added energy would simply speed up the dispersal of matter the way the sun dries dead cattle on the desert and bleaches their bones or the way the wind strews loose newspapers along a highway. Thus, the sun's energy with a little cooperation from green plants creates the physical conditions for restoring *order* in our biosphere and maintaining the ecological balance. How does that happen?

You may remember from your seventh grade science class a notion known as *photosynthesis*. It is through photosynthesis that plants capture the energy from the sun. Structures containing chlorophyll in plant cells convert the sun's energy through a process that not only releases oxygen so that we and other animals can breathe, but also produces *order* by concentrating and structuring carbon dioxide and water in such a remarkable way that carbohydrates result.

One way to remember this process is to think of the two “o” letters in the word, photosynthesis; they can stand for oxygen and order. “Synthesis” is a word that comes from the Greek word, *suntithenai* meaning “to put together.” It evolved into the Latin word, *synthesis*, and into English as *synthesis*, meaning in this case, to put together or produce order by concentrating and structuring dispersed matter.

While the process of photosynthesis is not actually magical, it is miraculous. This vital flow of sunlight is responsible for almost all increases in net material quality on this planet. Green cells are unique in our biosphere because they generate more order than they deplete. The cells of humans and animals cannot generate more order than they deplete. In fact, humans and animal cells always deplete more order than they generate.

As humans get better at mimicking Nature, we (not our cells) may begin to generate more order than disorder. Conceivably, we may design a technology that mimics plant cells. Solar powered robots capable of producing machines that charge other machines that collect waste may turn that waste into new resources and also produce more solar powered robots and machines...., well, you get the picture. The cyclical potential of solar power is absolutely awesome.

Therefore, the fourth principle the scientists agreed upon was this one: *Net increases in material quality on Earth are generated almost entirely by sun-driven photosynthetic processes.* Or, more simply stated, plants create structure and order by using energy from sunlight. As long as the rate at which disorder is created is in balance with the rate at which green plants can restore order with the help of the sun, the system will not run down. *This is the heart of sustainability.* As long as the sun shines, life is possible. Moreover, the best estimates indicate that the sun won't run down for another 2.5 billion years.

The foregoing scientific principles give each of us a way to escape the details of endless debate and move toward practical decisions.

Instead of leading to a dead end like the linear perspective tends to do, the systems perspective provides us with gifts of understanding natural laws and basic principles. These principles apply to systems at any level. They let us understand our species, the world, and our place in it. They allow us to escape from the paralysis of detail mania.

### **Systems Perspective vs. Analysis Paralysis**

Analysis paralysis is that numbed frame of mind we experience when details overwhelm us. The numbness is not surprising since we all suffer from information overload in this fiercely technological Information Age. Someone even coined a new phrase to describe what is going on: autocatalytic technology. It means that change, especially technological change, is a catalyst for more change. As each new change occurs, it agitates more change, which churns up even more change. Thus, as changes are speeding faster and faster, we either cannot keep up or choose not to wear out our adrenal glands in the process.

Analysis paralysis in the area of social, economic and ecological problems stems from our inability to see the often-subtle differences between fundamental

principles and nonessential details. For instance, if a candidate running for office were to ask several experts about the harmful effects of diesel exhaust, she most likely would receive divergent opinions, with no sound byte containing the whole truth.

One expert might maintain that there were inadequate data to evaluate whether diesel exhaust caused cancer and other health effects in humans. Another might quote a study concluding only a slight increase in the incidence of cancer in one small group of men exposed occupationally—conveniently leaving out the diesel industry’s role in funding the study.

The confused candidate might also hear: “It has not yet been proven conclusively in humans, only in female rats” or “There is inadequate evidence to determine thresholds.” She might even hear: “We have learned that, on an equivalent fuel energy basis, diesel exhaust releases particles at a markedly greater rate than from gasoline-fueled vehicles.”

If the candidate had grounding in systems thinking, The Natural Step Framework and its common language, she would have the ability to look at the trunk of the tree and its branches instead of the pitiful leaves as her experts did. She then would be in a far better position to ask appropriate questions and make practical decisions about this and other issues.

Starting from a basic level of principles would allow her to escape from the confusing details and move her toward sounder questions and clearer choices. Let’s imagine that she is well versed in The Natural Step principles, while her advisors are seasoned in the details. Here is how the conversation might go:

Candidate: Is diesel exhaust a naturally occurring substance?

Advisor: No, everyone agrees it is a product made by humans (not nature), derived from fossil fuels and containing many synthetic compounds.

Candidate: Are those compounds all chemically stable, or do they break down into harmless substances?

Advisor: The answer is that diesel exhaust is a *complex* mixture of gases and fine particles. The gas part includes nitrogen, oxygen, carbon dioxide, and water vapor. This gas part, as a result of incomplete combustion, also contains air pollutants such as carbon monoxide, sulfur oxides, nitrogen oxides, volatile organics, alkenes, aromatic hydrocarbons, and aldehydes, such as formaldehyde and 1,3-butadiene and low-molecular weight polycyclic aromatic hydrocarbons (PAH) and PAH-derivatives, such as nitro-PAHs. *Many of these have been found to cause mutations and cancer.* Diesel exhaust includes over 40 substances that are listed by the United States Environmental Protection Agency as hazardous air

pollutants and by the California Air Resources Board as toxic air contaminants. The International Agency for Research on Cancer lists fifteen of these substances as carcinogenic to humans, or as a probable or possible human carcinogen. Some of these substances are: acetaldehyde; antimony compounds; arsenic; benzene; beryllium compounds; bis(2-ethylhexyl)phthalate; dioxins and dibenzofurans; formaldehyde; inorganic lead; mercury compounds; nickel; POM (including PAHs); and styrene.

Candidate: That's alarming. Does this mean some of these substances will accumulate in the biosphere for as long as human society uses them?

Advisor: Yes that is correct, for as long as we emit more than can be assimilated. And, as a result of new technologies, *more fine particles*—a health concern—may be formed. That is not what we expected.

Candidate: Is it possible to predict a tolerable level of such stable, manmade substances?

Advisor: No, the *complexities* of all their imaginable interactions with each other and with the functions of the biosphere are unpredictable. We already know, for example, that nitro-PAH compounds can also be formed during transport through the atmosphere by reactions of adsorbed PAH with nitric acid and by gas-phase radical-initiated reactions in the presence of oxides of nitrogen.

Candidate: That sounds like humans and other species have become guinea pigs in a large-scale unsafe experiment. Neither Nature or we can sustain a systematic buildup of *any* compound, much less the persistent unnatural compounds like you listed. How long can we allow waste from diesel to increase?

Advisor: We can use diesel in the future, for many hundreds of years, only if we do not allow the waste to accumulate, for example, by allowing growing forests to accumulate the emissions from *much lower consumption* than that of today. Or, we can use it if we take the carbon dioxide and collect it, for instance, in aquifers in the earth's crust.<sup>42</sup>

In the real world of politicians and their advisors, a conversation today like this is rare. As ordinary people become more knowledgeable of The Natural Step, they will demand that their elected representatives and other public sector employees be able to govern from the systems perspective rather than from analysis paralysis. Taking the systems stand may, indeed, become one of the most attractive traits among those seeking elected office. In addition, since the principles apply to systems at any level, we can infer that taking the systems stand will be as attractive a trait in the private and personal sectors as well.

## Upstream vs. Downstream

“We all live downstream!” has long been a rallying call among activists advocating safe water. What some of them may not have realized is that their slogan envelops more than streams and other bodies of water. Since everything is connected and inter-related, what ends up in the water will eventually wind up in the soil and the air. Thus, another part of the Think Tree Approach highlights “looking upstream,” as early as possible in the causal chain. That is because *the system is defined upstream*. To anticipate and prevent problems before they occur, check upstream for what is happening. As Bill Bradley put it, look around the corner ahead of time.

In the midst of the information overload we experience daily, the downstream details are swamping us. So are the downstream problems, especially waste quandaries. At the same time that our downstream focus excludes the big picture, the bigger peril menaces upstream.

The dreary details discussed so far are plentiful downstream, or for that matter, downwind.

The Law of Conservation of Matter, in fact, reminds us that matter cannot disappear. Over time that garbage pile—or big brown cloud or however and wherever waste ends up manifesting itself—equals that giant hole a mining operation made in the Earth—or the acres of deforestation, or whatever huge scars our unsustainable practices leave.

The principle of matter conservation allows a shift from downstream to upstream. You will recall that matter cannot be consumed, and considering that it does not leave the Earth, we have the same amount we started with and cannot run out of matter. *Nothing disappears*. It follows then, that we must be exceedingly careful about our waste. Otherwise, we may all end up entombed in a massive garbage dump.

When we see the whole, we realize that the network of problems is more complex, more difficult to measure, more expensive, and more apt to increase *after* their initial occurrence... We recognize that environmental problems are in fact social problems. Moreover, if we want to head them off at the pass, we will apply systems planning upstream. It is cheaper in the long run to finesse conceptual problems than to wait until they are physically full blown.

The farther upstream we apply systems thinking the simpler things become. By the time problems have emerged in the downstream details, we can observe or examine only fragments of the whole. What surprise interactions might take place later? What larger threats loom upwind where the cause-and-effect relationships originate? It makes the most sense to work upstream where the overall principles are defined, complexity is reduced,

problems can be prevented at the source, and we can plan for a more sustainable future.

Complexity in the cause-effect chain is relatively low upstream, affording us the opportunity to spend our time more effectively (and probably more pleasantly, too) than if we exhaust ourselves with analyses of all the complex potential downstream effects. As we pay closer attention to the fundamental principles in Nature wherever the cause-and-effect relationships originate, we will be able to make decisions upstream that will make it possible for us to flourish and be resource efficient in meeting human needs worldwide.

## **Farewell Footprint**

The primary message from the foregoing is to “Think Tree.” When you think about the story of Austin’s Treaty Oak, remember the tree metaphor for the systems perspective, and the importance of the principles in the tree’s trunk and branches, rather than the details out in the leaves. When you focus on the trunk and branches, it will be easier to inspire consensus and positive actions. People will catch on quickly to the measures implied by the principles. A shared framework and a common language foster robust and relevant conversations. Once people clearly understand the trunk and branches, values-based debates resolve more easily.

Keep in mind that it is easier for people to think upstream in the causal chain at the source of problems where there is less complexity than downstream where they can get lost in a giant complex maze of details. Upstream is also where change and wise decisions can make the difference between a sustainable and unsustainable future. Keep in mind the paper mill and fish kill story. A dozen countries made a positive upstream decision—no paper mill, thank you.

Because systems thinking opens our minds to the nonlinear sphere, it allows us to see how dysfunctional our worldview has been—sucked in as we are by the linear assumptions of our culture. The tale of Austin’s Treaty Oak symbolizes our innocent, ailing planet. From all those who rallied around the Treaty Oak, we can take the cue that reviving a dying tree is possible. Ordinary people can accomplish extraordinary results. A critical mass of ordinary people can sway world public opinion to honor Nature’s Ultimatum, thereby deflating the power that dysfunctional worldviews hold over our fragile future.

The crucifixion and resurrection of the Treaty Oak remains a poignant reminder of what is at the heart of sustainability—that precarious balance is like a sacred treaty between disorder and order sustained by the dance of photosynthesis and the sun. Let us now turn to the sun’s diverse roles in our living systems.

## CHAPTER 4

# Sun-Coached Cycles

## Your Optimum Model for Cyclical Living

*Remember that you're standing on a planet that's evolving, revolving  
at 900 miles an hour. It's orbiting at 19 miles per second so it's  
reckoned the sun that is the source of all our power.  
The sun and you and me and all the stars that you can see  
are moving at a million miles a day In and out a  
spiral arm at 40,000 miles an hour  
in a galaxy they call the Milky Way.*

—John Seed, *Expanding Universe* (lyrics)

*As we busy ourselves with tearing down more than we rebuild, we are racing  
toward world-wide poverty in a monstrous, poisonous garbage dump.  
No temporary trade balances, illusory bank accounts, or pseudo-scientific  
disputes can save us from the consequences:  
The only thing that can is the restoration of cyclical processes.*

—Karl-Henrik Robèrt

*...If we understand that design leads to the manifestation of human intention,  
and if what we make with our hand is to be sacred and honor the earth  
that gives us life, then the things we make must not only rise  
from the ground but return to it, soil to soil, water to water,  
so everything that is received from the earth can be freely  
given back without causing harm to any living system.  
This is ecology. This is good design.*

—William McDonough

### Foothold

Because our earliest ancestors knew that it sustained their lives, many of them worshipped the sun. The sun gave them warmth and light. Sunshine was necessary for crops to grow. Sunrises and sunsets inspired early people to have faith in the future.

Through science, we know the sun's prehistoric work gets credit for the fossil fuels we use today. Eons before our first ancestors arrived on the scene, ancient animals and plants were able to live because of the sun. After they died and decayed, they fossilized deep within the crust of the Earth, eventually becoming oil, gas, and coal.

The sun provides much more than warmth, light, and energy. It has the potential, as The Natural Step Framework shows, "to pay all our bills" if we will just adapt to natural cycles and shift away from our linear industrial habits. Those habits pervert and clog the flow of Nature's inter-connected cycles and place all life in harm's way, inviting reverse evolution and extinction on a colossal scale.

## Finer Focus

My first encounter with fossils and extinction took place when I was a child. The same week my fifth grade Sunday School teacher told us that God created the world precisely six thousand years ago, my father brought me a fossil treasure from the oil field. Imbedded in a core sample of hardened sandstone were clearly visible fossilized insect shapes, shells, ferns, and pine needles..

There were other scary oddments I didn't recognize but my father, the wildcatter, assured me the ferocious looking critters no longer existed. They died off hundreds of millions of years ago—even before the dinosaurs. Probably during the Permian period, he said, when the largest mass extinction of life forms on Earth took place.<sup>43</sup>

Of course, I debated with my father because Mrs. Rudolph had told us just a few days before that the Earth was only six thousand years old. "The Bible says so," I declared. Hesitating no more than a moment, my father began to explain the difference between the way people understood the world in biblical times and our current scientific understanding:

Inspired ancient scribes wrote so people living at that time would understand their stories. Today we know much more now about how the world works. When you are grown, your generation will know even more, he assured me, and knowledge will keep on expanding. Yet, no matter when people live or where, he told me, they understand the Creator and the Creation because God created the entire Universe. No knowledge can change that, he contended.

A spiritually inclined man himself, my father had no difficulty reconciling the far-reaching geological knowledge of our Industrial Age with the poetic literature and sacred writings of a pre-scientific era. To him, it *all* made sense.

Where I lived as a child, an enormous inland sea once shimmered. Covering a vast expanse of what is today West Texas and Southeastern New Mexico, the sea in the Permian Basin—as geologists refer to it—ebbed and flowed for millions of years between a great dry lake bed and a huge flooded plain. With each ebb, the sea left assorted sea creatures and marine plants to die off or to fend for themselves on a landscape completely alien to their sea world. When the basin flooded again, land creatures and plants were washed from their familiar land base into the sea to sink or swim. Most sank to the bottom of the sea where they decayed.

Over millions and millions of years living matter from a previous geological time decomposed on the floor of this ancient sea and eventually fossilized in oily sandstone or shale. My fossil treasure had disintombed at least a tiny portion of a series of ancient catastrophes.

Perplexed by two entirely different stories, for several months I peppered my father with questions. How old is God? Is God older than six thousand years? Did God make these fossils? I wanted to know. Did God create the plants and animals before they got fossilized? Moreover, what about the Permian Basin? What about the dinosaurs? Did God create all of them?

Like Socrates, my father answered me with questions of his own: Who else would have the divine power to create them? Who but a power grander than humankind would have the brilliance to create the entire Universe? These were mind-bending exchanges. Ever after, I retained a heartfelt curiosity about our amazing Creation and the brilliance of the Force that Created All, called “Great Spirit” by our ancient ancestors.

### **From Sun Worship...**

At the mercy of the seasons, early human inhabitants of the Earth paid closer attention to their immediate survival than to mind-bending questions about the creation of the world. Because of this fixation on survival needs, sun worship was prevalent in many ancient cultures.

In the region we know today as Peru, sun worship formed the basis of the Incas’ social existence, wrote William Prescott, author of the classic history of the Inca conquest. While the Incas acknowledged a Great Spirit or a Supreme Being, it was the Sun “who, in a particular manner, presided over the destinies of man, gave light and warmth to the nations, and life to the vegetable world.” They “reverenced” the sun “as the father of their royal dynasty, the founder of their empire” with temples “throughout the land.”<sup>44</sup>

The Inca temple at Cuzco, “the wonder of the empire,” was “literally a mine of gold,” says Prescott. For its worshippers, gold represented “the tears

wept by the Sun,' and every part of the interior of the temple glowed with burnished plates and studs of the precious metal."<sup>45</sup>

Like many early agricultural religions, Incan theology required monthly festivals and four magnificent celebrations commemorating the important cycles of the Sun—the summer and winter solstices and the spring and autumn equinoxes. Ministerial candidate and Life Coach Tara McDonald has wondered if many of Christendom's hymns, especially Christmas carols, were revisions of early sun-worshipping tunes celebrated at Yuletide, held at the winter solstice. Surmising that the ancients may have "feared that the sun in the sky might not return," she wrote, "as winter came, all they saw was their days growing shorter, the nights longer, and food becoming scarce. If the sun died out, how would they survive? They couldn't keep warm for long or grow food without sunlight."<sup>46</sup>

McDonald observes that early people used "the model of the sun in the sky to describe how God works. They relied on the Sun above (a metaphor for God) to rise again, or be born again, at Solstice. They celebrated this event with a holiday called Yule, lighting fires to welcome the return of the Sun. The Sun then grows, from Yule forward, to longer and longer days." Certain present day tunes hark back to the deep connection earlier people had with the natural world.<sup>47</sup>

Dependent on the benevolence of the seasons and the weather, early farmers in many parts of the ancient world naturally turned to sun worship. Since the sun provided light and heat essential not only for their crops but also for their personal warmth, people considered the daily—as well as the seasonal—journey of the sun to be hugely important. From sunrise until sunset, the sun ruled social life. Certainly, this was the case in ancient Egypt where its solar religion originated at Heliopolis and where the sun-god Aton gained single god status during the reign of Ikhnaton.

Sun worship was also important in Mesopotamia where the sun-god Shamash was equal with justice. The Druids left us Stonehenge in England with its obvious sun features and other astrological points. The sun influenced beliefs in Greece (Apollo and Helios were solar deities) and Rome. The sun was preeminent in other early religions including Zoroastrianism, Mithraism, Hinduism (with its solar calendar), and Buddhism (particularly in Japan, the land of the rising sun). In addition to the Incas, the sun worship of the Aztecs and their ancestors, the Toltecs, in the region of present-day Mexico were prominent among Native Americans.

Today, we see evidence of ancient sun worship in religious instruction on Sundays in Sunday School. "Sunday" is the *first* day of the week, the day of *worship*, and the Christian Sabbath. The word "Sunday" derives from the Middle

English word, *Soneday* that came from Old English *Sünnadaeg*, which was a translation of the Latin, *dies solis*, which means “day of the sun.” Like a recessive gene, the day of the sun continues to be the day of worship for many religious groups today, reflecting the earlier widespread worship of the sun.

### ...To Science as Sacred?

Although the journey has been long and rocky, science has verified what ancient people knew intuitively: the sun sustains life on Earth. We learned in General Science that the sun is the star that forms the heart of our planetary solar system. As the physicists in the Manhattan Project knew, it is also one huge nuclear reactor. What their linear thinking constructed, however, led Martin Luther King, Jr. to lament: “We have genuflected before the god of science only to find that it has given us the atomic bomb, producing fears and anxieties that science can never mitigate.”

To be sure, science has struggled with linear thinking, even wrongdoing. J. Robert Oppenheimer, the director of the Los Alamos National Laboratory and the policy brain behind establishing the Atomic Energy Commission, later in life revealed: “The physicists have known sin; and this is a knowledge which they cannot lose.”<sup>48</sup>

Our sun is not the only such star in our galaxy—there may be billions of suns in our corner of the universe. Moreover, there appear to be thousands upon thousands of galaxies beyond our own. Joseph Campbell, in an essay about the impact of science on myth, characterized the awe we experience “before the wonders of the universe that is being developed for us by our scientists surely is a far more marvelous, mind-blowing revelation than anything the pre-scientific world could ever have imagined.”<sup>49</sup> Certainly, since 1961 when Campbell first penned those words, science has brought us ever more stunning revelations about our amazing, expanding universe, our own galaxy, planetary system, and our very own sun.

Not only has science confirmed that the sun is our source of warmth and light, we now know that our sun is the source of all our power. It matters not that the hot molten core of the planet continues to generate tremendous heat from the half-life decay of heavy radioactive elements that flowed to the interior of the planet during its infancy. The solar energy flow from our sun is 5,300 times greater than heat from Earth’s interior. The energy we actually use here on Earth derives either directly from the sun or indirectly from what the sun has achieved over the long haul of evolution. Oil, gas, and coal are results of the sun’s ancient work. Without the aid of these fossil fuels, the nuclear industry and geothermal energy most likely would not have been developed. The sun

gives us much more, however, than merely warm rays, welcome illumination, and energy.

### Current Income from the Sun

The sun and its functions serve as optimum templates for designing our lives and our world. Award-winning architect and internationally renowned designer William McDonough explains: “there are certain fundamental laws that are inherent to the natural world that we can use as models and *mentors* for human designs.” [My Italics] By studying the processes by which life manifests itself on our planet, we may “discourse about the logic of our earth household” (the meaning of *ecology* for the ancient Greeks) and “speak of natural law and how we measure and manage the relationships within this household” (their meaning of *economy*).

McDonough, *Time* magazine’s 1999 “Hero for the Planet,” points out that the first fundamental law is *waste equals food*: “Everything is cycled constantly with all waste equaling food for other living systems,” thereby providing everything architects have to work with: “the stones, the clay, the wood, the water, the air.” McDonough, of course, is speaking of waste in Nature, not society’s waste.

The energy behind this cycle comes from the sun, generating McDonough’s second law: “this energy comes from outside the system in the form of perpetual solar income. Not only does nature operate on ‘current income,’ it does not mine or extract energy from the past, it does not use its capital reserves, and it does not borrow from the future. It is extraordinarily complex and efficient system for creating and cycling nutrients, so economical that modern methods of manufacturing pale in comparison to the elegance of natural systems of production.”<sup>50</sup>

Perpetual solar income means, “the sun pays all the bills,” referring to the free services and products available from solar resources on which the non-human natural world already depends. Those services and products translate into “current income.”

McDonough and others affirm that we can live on what is renewable and what can be replenished without destroying the reserves of resources that provide us with “dividends and interest.” We do not have to go into debt or borrow from the future. We can live on our regular income and live within our means.

By way of example, let’s pretend Sally inherits one million dollars and puts it in a savings account. That sum represents Sally’s financial reserves (or assets or principal or seed money). Let’s say the yearly interest rate is five percent,

making Sally's *current income* \$50,000 per year. To live according to "natural design," she would live within her means—on her current income. If she draws directly from the reserve, her current income will decrease. If she continues to draw from her cash reserves without replenishing them, she will eventually deplete her assets. Sally, therefore, would be wise to live on current income, not go into debt, and not spend her nest egg.

Similarly, we would be wise to live on current income from solar and other natural resources rather than by consuming the natural capital or the principal of those resources. Instead of copying our linear industrial economy which converts resources into waste at a far faster pace than Nature can metabolize or replenish them, we need to copy Nature's economy of cycles, as our role model.

McDonough's final law or characteristic has to do with protecting biodiversity because it "sustains this complex and efficient system of metabolism and creation.... What prevents living systems from running down and veering into chaos is a miraculously intricate and symbiotic relationship between millions of organisms, no two of which are alike," an aspect of biodiversity, and one of the subjects of Chapter 5.<sup>51</sup>

The sun literally propels the life cycles on our planet, free of charge. Many scientists, in fact, say the sun "drives" the cycles. Since the word "drive" calls to mind a mechanistic and linear world view, I prefer to say the sun "mentors" or "coaches" the cycles because the sun brings out their best, tapping into the unfulfilled potential of the cycles. The sun revs up the cycles to be all they can be. It helps them give it "all they've got." It demonstrates there is no scarcity, only abundance. It is always there to beam good vibes from the sidelines, as any self-respecting human coach would do.<sup>52</sup>

Thus, rather than worshipping the sun as a god, our present generation can appreciate the sun as a generous master coach, the paramount coach of our solar system. The coaching costs us nothing, it helps us restore value and order, and it encourages us to become better human beings. Most importantly, it shows us how to abide by Nature's Ultimatum by shifting from our linear way of life to living and working in harmony with natural cycles.

### The Sun and the Water Cycle

By definition, all *linear* processes eventually must come to the end of the *line*. It is only natural cycles—cyclical processes—that can help us restore order and value to our disordered world. The natural cycles with which we most need to become familiar include the water cycle and the gaseous cycles (the carbon, oxygen, and nitrogen cycles) especially as they relate to cells and

photosynthesis. Less critical for a sustainable future is the very slow sedimentary rock cycle.

You will recall from Chapter 3 that scientists came to a consensus on certain principles, pointing to an idea as elementary as the circle. Fresh water in Nature, for example, is part of a circle scientists call the hydrologic cycle. When the sun shines on the seas, especially on the tropical oceans, water evaporates, changing from a liquid form into a gas, making the atmosphere humid. On a hot summer day here in Texas, we actually get most of our humidity from winds blowing from the Gulf of Mexico.

The sun also shines on treetops, evaporating the moisture in their leaves. This moist air rises, cools, and the water vapor either forms clouds or disperses so evenly in the atmosphere that it is not detectable by the human eye. Winds—also energized by the sun—transport this airborne water around the planet until it condenses and gravity pulls it back to the Earth's surface as rain or some other form of precipitation

Rain is the most common way of transporting water from the atmosphere to the surface of the Earth. Once rainwater reaches the ground, it may run off into streams, evaporate back into the atmosphere, or penetrate the surface of the Earth and become groundwater. In any case, gravity draws it back toward the oceans. Some of the rain, though, will be absorbed by plant roots and pumped up from the soil to deliver inorganic nutrients to their leaves. The water in the leaves evaporates quickly in the process called *transpiration*, which is responsible for a fair amount of the water that enters the atmosphere. The sun-powered water cycle continues automatically.

Frozen water may be trapped for long periods at the poles, in glaciers, and as snow on mountaintops. Whenever it melts, this water, too, will rejoin the water cycle. With the onslaught of global warming, glaciers galore are presently melting, adding ever more water to the cycle... and to the sea levels.

Water is also released from plants and animals through the *respiration* process where the breakdown of carbohydrates (sugars) generates energy and produces both water and carbon dioxide as waste products. This is the reverse of photosynthesis where water and carbon dioxide are combined to form carbohydrates in plants. This water, too, is part of the cycle.

All living organisms require water. The hydrologic cycle *maintains the purity and the availability of this basic necessity*. The value of this cycle is, therefore, incalculable, priceless. *Humans are incapable of duplicating it*. Because we, like other organisms, require fresh water, it is foolish for us to interfere with the water cycle by, for example, destroying the forests that play a necessary role in the renewal of this basic resource.

As advanced industrial society degrades the atmosphere by creating compounds alien to the metabolism of all living beings, society further debases the atmosphere by upsetting its natural balance with enormous quantities of carbon dioxide from fossil fuel combustion. Moreover, the growing human population draws out more water from the ground each year than is replenished by rainfall. In the U.S., farmers and ranchers *daily* withdraw 20 billion gallons *more* from groundwater stocks than precipitation replaces. Coaching others to coach others to protect, not subvert, the water cycle will go a long way toward protecting people and other life forms from starvation, disease, weather disasters, and toxins.

### The Other Cycles

We now know that everything is connected. This is no less true of the water cycle and its links with other natural processes and cycles. When plants, in the process of respiration, give off water, it escapes the plant tissues through special cells. These cells control the entry of carbon—in the form of carbon dioxide necessary for photosynthesis. When these cells open to let in the carbon dioxide, water vapor escapes and enters the hydrologic cycle. Thus, the carbon cycle is intricately linked to the processes of respiration and photosynthesis, and therefore to the water and oxygen cycle. Again, everything is connected.

**The carbon cycle.** The carbon cycle involves both the storage reservoirs (known as carbon sinks) and the flows of carbon. Photosynthesis takes solar energy from the sun and converts it to chemical energy in green (chlorophyll-containing) plant cells, allowing the synthesis of carbohydrates from atmospheric carbon dioxide and water, with the simultaneous release of oxygen. That is how carbon is stored in plants as carbohydrates. This carbon may be 1) liberated through the respiration process as carbon dioxide, water, and energy; 2) stored in the plant until it dies and then decays; or 3) eaten by an animal.

Since animals receive all their carbon from food and since all food-grade carbon in the biosphere ultimately comes from the carbohydrates in plants, animals are directly dependent on plants for this essential element. Animals metabolize the carbohydrates, which are assimilated, and 1) eventually released through respiration, 2) stored in the animal's body until it dies and then decays, or 3) eaten by another animal.

Carbon released to the atmosphere through respiration will end up dissolved in the ocean, taken up by a plant in photosynthesis, or be added to the carbon dioxide burden in the atmosphere. When animals or plants die, the stored carbon in their tissues can be decomposed by micro-organisms and then released to the atmosphere or the organisms can be buried intact and ultimately become

oil, gas, or coal. These fossil fuels may someday be burned, releasing carbon dioxide to the atmosphere. Eventually, all carbon returns to the atmosphere where the cycle begins again.

Because carbon dioxide is a by-product of fossil fuel combustion, the amount of carbon dioxide accumulating in the atmosphere has dramatically increased since the advent of the Industrial Revolution. Worldwatch Institute's Ed Ayers reminds us that the concentration of carbon dioxide "had increased by about 1 part per million every 400 years through most of our species' expansion." It "began rising 100 times as fast—by an average of 1 ppm every 4 years between 1800 and 1970—and since then has accelerated even more, to another 1 ppm about every 8 months."<sup>53</sup>

Carbon dioxide is a greenhouse gas, meaning its action in our atmosphere is like that of glass in a greenhouse. Greenhouse gases blanket the planet, warming the surface and lower atmosphere of the Earth. The risks of global warming to humankind and other living things are grave: mega-floods and fiercer hurricanes, deteriorating water stocks, fast melting glaciers and polar caps resulting in massive sea level rises around the globe, new pathogens and tragic epidemics engendered by climate change-induced migration of insects and other creatures, accelerated extinction, widespread agricultural failures and food shortages—in brief, rampant suffering.

Since 1970, weather disasters, on an annualized basis, have increased more than 40-fold. The solution? Phase out fossil fuels quickly to make possible "a faster shift to nonpolluting, renewable solar, wind, and hydrogen energy systems."<sup>54</sup> And lest you be deceived by the nuclear industry's propaganda, nuclear energy is *not* the solution, for reasons that we will address later.

**The oxygen cycle.** Since oxygen is present in carbon dioxide, carbohydrates, and water, *the oxygen cycle* is clearly intermingled with the other cycles. The oxygen cycle links to the carbon cycle during the process of photosynthesis when plants release oxygen to the atmosphere. In fact, *all of the oxygen in the atmosphere was released from water through photosynthesis.*

During respiration, both animals and plants take up oxygen. People along with animals breathe in oxygen and breathe out carbon dioxide. Since plants and trees take in carbon dioxide and release oxygen during respiration and photosynthesis, we are completely dependent on these essential services Nature provides us for free, just as we rely totally on other ecosystem services. Indeed, the best scientists have yet to design a human-built system that keeps the appropriate amount of oxygen in our air.

They have tried, though. In a bold experiment to study life within a closed system, the Biosphere 2 project invested \$200 million dollars in 1991 and

called on the best scientific minds available to design and construct a human-built ecosystem near Oracle, Arizona. Among other sad outcomes, the oxygen concentration dropped too low to sustain health—to around 14 percent, while carbon dioxide and nitrogen increased in the artificial atmosphere.

Through the eons, Nature has finely-tuned the proportion of oxygen in our atmosphere to 21 percent. This amount sustains people and other living things. Oxygen-dependent organisms would be unable to survive long on less than this percentage. If oxygen concentration were to increase by one-fifth (20 percent), physicists tell us, “all the vegetation on Earth would burst into flames and virtually all life would be destroyed—most of it within hours.”<sup>55</sup>

In Nature, excess oxygen generally finds its way into waterways and oceans and reacts with certain elements to become metal oxides. Oxygen also oxidizes in our air at “street level” to form ozone, a major component of smog and an air pollutant that is unhealthy for everyone, but most particularly for young children, the elderly, and those with compromised immune systems.

In the stratosphere, another type of ozone occurs naturally as the protective Ozone Layer, which shields us from damaging cosmic radiation. In the lower part of the stratosphere and in the troposphere (just below the stratosphere), ozone operates as a greenhouse gas.

**The nitrogen cycle.** The nitrogen cycle involves continuous chemical reactions in which atmospheric nitrogen is compounded, dissolved in rain, deposited in the soil, assimilated and metabolized by bacteria and plants, and returned to the atmosphere by organic decomposition. In Nature, nitrogen moves in a large atmospheric cycle and through the ecosystem with the aid of several types of specialized bacteria and decomposers. Since it is a complex cycle, we will look at only a few important points.

Most people are unaware that nitrogen is not very excitable—it literally takes volcanic action or a bolt of lightning to get its attention. Indeed, lightning provides one of the few natural ways that nitrogen can be taken from the atmosphere and “fixed” as nitrate. (Fertilizer factories have devised a similar manner of fixing nitrates using an extreme amount of energy). Another way Nature arranged for fixing nitrogen is through nitrogen-fixing bacteria endowed with special enzymes. Some of these bacteria live in the soil. Some are symbiotically bound with the roots of legumes. Most are blue-green algae (photosynthetic cyanobacteria) found in the sea and other waterways.

Some compounds of nitrogen are hazardous. For example, sodium nitrate, a common ingredient in processed meats, may be carcinogenic. Nitric acid, nitroglycerin, and nitro-starch are explosive. Nitric oxide, nitrogen dioxide, and nitro-benzene are poisonous. During the period Biosphere 2 was having

trouble with low oxygen levels, nitrous oxide concentrations reached levels unsafe for brain cells.<sup>56</sup>

Most plants have the ability to take up nitrate from the soil and convert it to amino acids, which in turn form proteins in our bodies when we eat the plants. Nitrogen is a constituent of all proteins and nucleic acids. Plant tissues are the only source of nitrogen for animals. When plants or animals die or release waste, nitrogen returns to the soil through decomposition, to be taken up by plants again through the cycle.

When we use human-made nitrogen-containing fertilizers and fossil fuels, they release pollutants that increase soil acidity. This affects the root absorption of magnesium, calcium, and potassium ions. Consequently, the cycle loses more nitrogen because Nature's only way of returning nitrogen compounds directly to the atmosphere is through "denitrifying" bacteria. Since 78 percent of our atmosphere is composed of nitrogen gas, these bacteria have a huge task that we humans would be hard-pressed to replicate.

That brings us back to the lessons learned from Biosphere 2, over which Paul Hawken and Amory and Hunter Lovins cogitated: "there are some resources that no amount of money can buy. Few if any human-made substitutes can truly supply the diverse array of benefits that flow from nature. We cannot manufacture watersheds, gene pools, topsoil, wetlands, riverine systems, pollinators, or tropo-spheres, let alone create an entire ecosystem."<sup>57</sup> Nor can we replicate Nature's cycles.

It is curious, then, how anyone can advocate the colonization of space when our species has yet to learn how to imitate natural processes, living cycles and ecosystem services. Futurist Barbara Marx Hubbard, for example, calls for aggrandized space exploration and development of "the further reaches of... the universe beyond the planet of our birth."<sup>58</sup>

In a world with so much creative potential and too much suffering, such investments seem reckless and cruel diversions. Each time we launch a space shuttle with its unconscionably polluting fuel and deluded promise of extra-terrestrial out-migration, we endanger the essential integrity of the Earth's life-sustaining systems. With few exceptions, we would be more secure spending space and defense funds on our home planet's vital life-sustaining priorities.

We need to remind ourselves of these truths and to coach each other, our communities, and our representatives at every level of government—from the hamlet to The Hague—on the need to live and work from *current solar income*. Until human-made plans have integrated Nature's Ultimatum, they remain inferior to natural design. The line John Steinbeck borrowed from the Scottish poet Robert Burns befits this contention: "the plans of mice and men often go astray."<sup>59</sup>

## The Cell and the Biochemical Cycles

Let us look now at cells.<sup>60</sup> Cells played significant roles in creating nearly all of our natural resources. A cell is the smallest structural unit of an organism that is capable of independent functioning, consisting usually of a nucleus surrounded by a membrane. You and I, other people, our pets and all other animals are composed of cells. *Our human cells are remarkably like those of other animals.* Indeed, “humanity is kin to all other life forms by common descent. We share essentially the same DNA genetic code, which is transcribed into RNA and translated into proteins with the same amino acids.”<sup>61</sup>

It is only at the intricate molecular level that scientists can determine whether a cell is that of a human or another type of animal. We humans are part of Nature and Nature is part of us. The life requirements of our human cells are every bit as non-negotiable as they are for any other cells. No cells—whether human or otherwise—are designed to metabolize cadmium or mercury or other toxic compounds. Pollutants, toxins, and pathogens act upon us as profoundly as they do upon other species.

Surprisingly, plant cells are also remarkably similar to animal and human cells. All cells emerged from a common ancestor and share many genes. Chloroplasts in plant cells enable them to utilize solar energy. Chloroplasts are special cellular structures containing chlorophyll and are one of the unique characteristics that distinguish green plant cells from human and animal cells. “Even then,” maintains ecological designer Joanne Tippett, “a chloroplast is only one magnesium atom away from a red blood cell.”<sup>62</sup>

Nature created an elegant perpetual cycle for constantly re-assimilating matter into quality which is rebuilt through photosynthesis. Matter cycles between different organisms and this keeps the metaphorical battery charged. Put simply, the sun energizes the photosynthetic green cells and they share the sun’s energy with all forms of life. As the primary producers—and this serves well as a model for coaching for an economic system where the whole world matters—the plants do not take up more matter from their environment than they need for their work of construction. The decomposers (fungi, protozoa, etc.) break down animal wastes into new building blocks, rendering matter usable for another cycle of photosynthesis.

Energized by the sun via the water cycle and photosynthesis, the basic components of life (water, carbon, oxygen, nitrogen, sulfur, phosphorous and so on) all take part in the grand cycles of matter. Animal waste has not exceeded the reconstruction capacity of these cycles. Natural Step founder Dr. Karl-Henrik Robèrt reminds us frequently that these biochemical cycles have

facilitated the transformation of disorganized and dispersed matter into the highly organized complexity of the biosphere.

Put another way, the sun energizes the photosynthetic green cells and they in turn convert the sun's energy into chemical energy and synthesize carbohydrates that they store in their plant bodies. They are essentially re-concentrating dispersed matter (disorder) into concentrated and structured quality (order). Animals come along and consume the plants (order). They then discharge waste (disorder) which is then recycled by the decomposers whose job it is to manufacture from waste healthy plant nourishment so that the green plants can once again build up structure, material quality, and ordered matter.

An organic garden with its compost pile represents a familiar example of this cycle. Except for sunshine and rain, assume a garden that is a closed system (no outside material is brought in, such as pesticides, potting soil, or fossil fuels). In this case, the gardener and the resident goat eat the green plants from the garden. The waste created in the garden (from weeding, fallen leaves, and non-edible natural debris), kitchen scraps, and manure (both human and goat) would all be placed on the compost pile and covered with dirt and grass clippings and a good splash of water.

In the compost, decomposers (tiny micro-organisms) go to work consuming waste, excreting more waste, and dying there to enrich the compost even more. The final outcome several months later is a compost pile that has turned into *free*, rich, sweet smelling, clean naturally fertilized soil to be spaded back into the garden as food for the next green plants.

Everything fits in the cycle. There is no accumulated waste—visible or invisible. That is a hallmark of a natural cycle. No garbage accumulates in the system. There is balance in the flow from order to disorder and back again to order. Waste from animal digestion, respiration, and decomposition becomes food for plants.

What is important for us to burn into our brains here is that *the sun pays all the bills*. We do not have to go to the hardware store and buy any weed killer or other chemicals in order for Nature to take her course. Green plants work free of charge propelled by the energy from the sun. Like the earlier example of Sally living off her current income, a sustainable organic gardener can do the same. Green plants are thus what science calls “primary producers” of ordered matter, concentrating and restructuring the decay products from everything else, including humans and their natural debris.

Outside of the primary production by green cells, the sun does not directly propel other production. Production by our animal cells science dubs “secondary.” In other words, only green cells are directly sun-coached. Our

human cells therefore are dependent on photosynthesis in green plants for the restoration of order. As long as the sun continues to shine, this exquisite living cycle can continue. This cycle is a *free service given* to us by Nature. Coach your community to take advantage of this unparalleled opportunity!

All of these sun-coached living cycles are “large and fast” flows of matter within the ecosphere (the region of the Earth that is capable of supporting living organisms). In contrast, there is also a “small and slow” flow of matter between the ecosphere and the lithosphere (the Earth’s crust).<sup>63</sup> In this slow cycle volcanic eruptions and weathering introduce matter into the biosphere (the part of the Earth and its atmosphere in which living things exist). This cycle is slow because the waste is returned to the Earth’s crust through the very slow process of sedimentation, where the volcanic debris and matter from weathering slowly settle and are deposited, usually on the bottom of the oceans. Together these two synchronous cycles of matter—the fast biological cycling and the slow geological cycling of matter—are sustainable. And the sun pays all the bills.

### Orderly Evolution

Just as our planet has evolved, so have the cycles and life itself. When our planet first burst forth from a supernova some 4.5 to 5 billion years ago, there was only disorder. There were no cells, no life. Imagine a lethal-to-life noxious foamy meringue-like froth enveloping the new planet. Ammonia, methane, hydrogen sulfide, carbon dioxide, radioactive material, and heavy metals such as lead and cadmium filled the space that would later be called Nature (the atmosphere and the planet’s surface). There was no free oxygen, which is necessary for life as we know it. The Earth’s surface was chaotic and disordered. Matter had not yet begun to concentrate and structure into deposits of resources.

Recent research findings indicate that the first cell appeared in the sea about 3.85 billion years ago. Cell division began. Then, sulfurous compounds and heavy metals collected in these cells.

Saturated with lead, uranium, and sulfurous waste, these cells died and sank to the bottom of the seas—much like my fossil treasures did during the Permian period billions of years later. There, on the bottom of the ocean or lakes, and over millions of years, these inorganic substances became ore as they mineralized into rock. As these toxic substances were being withdrawn from the noxious froth, concentrated, and deposited deep within the Earth’s crust, the air and water experienced a *cleansing* process.

Over the next billion years, green cells evolved and, through photosynthesis, began producing oxygen, eventually building up free oxygen in the atmo-

sphere. When the percentage of oxygen reached 20-21 percent, just below the flash point where the oxygen would catch on fire, somehow the extra oxygen converted to ozone and drifted upwards to form the protective shield we call the ozone layer. For the first time deadly and intense ultraviolet radiation from the sun was screened out and diversity of life was now possible.

It would take literally billions of years of “clean up” for material order to emerge. Through the sun’s free services, toxic materials slowly and continually were sequestered within the Earth’s crust, out of harm’s way. The ozone layer kept up its job of shielding the surface of the planet from dangerous ultraviolet rays. Diversity of plant life multiplied. Finally, around 500 million years ago, conditions had improved sufficiently to create ample food, oxygen, and radiation protection for the first *animal* cell to appear on land. From that point forward, life quickly grew in complexity.

Certainly, one way to view evolution is simply as “the buildup of an increasing degree of order in the biosphere over time, first concentrating dispersed matter from the early ‘toxic stew’ into deposits in the Earth’s crust, then structuring matter into increasingly complex and diverse forms of living systems.”<sup>64</sup>

An incredibly significant part of orderly evolution on our planet, of course, is the exquisite design of the life cycles we have just surveyed. In the history of the planet, only a few events have disrupted these cycles: asteroid or meteorite impacts and comet showers from outer space; massive volcanic eruptions sending huge quantities of sulfates or silica into the atmosphere and altering climate; glaciation; deviations in sea level; changes in oxygen or salinity levels in the ocean; and, theoretically, new continent formation. Now, in our lifetimes, humanity has, for the first time, joined the list of forces disrupting the cycles.

### Clogging the Flow

Imagine a time log for the Universe. Each page—divided into 24 slots metaphorically representing the hours in a day—lists the major events from different corners of the Universe. You open the log to the page outlining the long history of life on Earth. On this compressed scale, you have trouble locating the emergence of the human species. That is because humans arrived on the scene very late: 2 seconds before midnight. The industrial revolution can barely be discerned, appearing in the last seven thousandths of a second!

From this perspective, humankind seems like a weak, wee newborn. In the larger scheme of things, though, frets the distinguished biologist Edward O. Wilson: “we are the first species to become a geophysical force, altering Earth’s climate, a role previously reserved for tectonics, sun flares, and glacial cycles. We are also the greatest destroyer of life since the ten-kilometer-wide

meteorite that landed near Yucatán and ended the Age of Reptiles sixty-five million years ago.”<sup>65</sup>

In the time preceding the Industrial Revolution, the natural cycles and natural flows seem to have functioned as Nature intended. Even at the beginning of this age, the scale of human activity was small relative to the biosphere as a whole. At that point, natural flows of material were still significantly greater than human-generated flows. Resources looked as though they were infinite. So did the capacity of Earth to absorb society’s waste.

Then an unexpected thing happened on the way to the future. Industrial activity mushroomed. Human manipulation of the natural world exploded. Now, the magnitude of human industrial activity has emerged as an aggressive rival of the vast biosphere. Within the context of human activity, the flows of certain materials now exceed natural flows. Human-generated flows of copper, for example, are twenty-four times that of natural flows. Chromium is sixteen times, lead twelve times.

These are only a fraction of the elements being mined from the Earth’s crust. Industry today is mining and extracting matter at a record rate. And since everything spreads and nothing disappears, these ores, metals, and accompanying waste are spreading like an epidemic through the biosphere. They are dispersing faster than Nature’s ability to metabolize or cycle them back into the Earth’s crust where they belong.

In addition to upsetting the balance of natural flows, other industries—particularly the pharmaceutical and chemical industries—concoct at an unprecedented pace synthetic compounds that are completely alien to Nature’s metabolism. Dangerous wastes from these activities, too, routinely collect in our biosphere. No known cleansing cycles exist for them.

The prevailing industrial complex, then, not only threatens to deplete our resource base, but is also systematically producing a gigantic dispersal of waste—both solid waste and invisible molecular waste. And lest we forget, by weight the molecular garbage we cannot see is approximately ten times the visible waste.

Affecting the biophysical pre-conditions that support life, this waste puts our future at risk in ways we already know about, such as the ozone hole over Antarctica. It also imperils our future in a manner we can hardly imagine because of the Nemesis Effect—the convergence of surprise events and unpredictable interactions giving rise to sudden stressors, engendering rapid and unexpected declines.<sup>66</sup> In coaching your community, remind people that at a certain concentration, anything can be toxic. Moreover, the thresholds are largely unknown.

By tolerating corporate sprawl, by paving over green surfaces, by over-harvesting the oceans and over-hunting the jungles, by clear-cutting and burning down forests and eroding the soil, we sabotage Nature's job of creating order out of disorder. This impairs Nature's essential job of re-concentrating and structuring matter in sun-coached cycles.

### Reverse Evolution

Humankind is clogging the flow and reversing the evolutionary process. "Despite our technology and swelling knowledge, the evidence is irrefutable that we have turned the hourglass of evolution upside down," says Gloria Flora, a former U.S. National Forest supervisor.<sup>67</sup>

During the millennia, we have been part of the life drama on Earth's stage; our species has integrated well into the cycles of Nature. In the last one hundred years or so, however, fueled by non-renewable sources of energy, we have had both a dramatic and a drastic impact on the flows of matter from the Earth's crust into the biosphere.

There is no question now that fossil fuels and nuclear energy have harmed the health of people and the planet. We did not evolve in the presence of radioactive and hydrocarbon substances. Neither did the living systems on which we rely for continued existence. Nor are we able to suddenly adapt to such substances. Out of balance life cycles make unpleasant surprise events more likely.

Advanced industrial society has contaminated the physical and chemical properties of the air we have always breathed, the soil that has long brought us bountiful harvests, and the safe water we have taken for granted. Without the aid of a large asteroid, we are "re-toxifying" the air, soil and water. We are managing to produce what Ed Ayres calls a once-in-an-eon event: an extinction spike as noteworthy as the one that occurred when the dinosaurs disappeared.

In addition to the huge loss of exotic wild species, seed stock from an enormous number of domestic foods is disappearing. Gardeners and farmers who used to save seeds have abandoned tens of thousands of heirloom seeds substituting industrial agriculture's hybrid and genetically manipulated seeds. This "loss of genetic diversity in agriculture," write biodiversity activists Carey Fowler and Pat Mooney, "is leading us to a rendezvous with extinction—to the doorstep of hunger on a scale we refuse to imagine."<sup>68</sup>

Over billions of years, disorder lessened as order expanded. Now, within just a few decades, disorder appears to be returning with a vengeance. Ecosystem services are dwindling; none of which we can do without and none of which we can design ourselves. If we lose our topsoil or seed diversity, it will

not matter if we have stabilized our climate. We will starve anyway. If we lose our temperate climate due to global warming, it will not matter that we have learned how to compost and not waste. We are still clogging the other ecosystem flows. Make no mistake about it; *all* of our ecosystem services are required for sustaining society. Everything is connected.

### Is Mass Extinction in the Cards?

Minor incidents, like a father sharing a fossil treasure with his young daughter, can have big consequences. Out of that small event emerged a curiosity about the wider world—its intriguing past, its precious present, and its uncertain future. Out of that experience, too, a seed germinated that led eventually to this book. Thinking about those fossils now, I realize they were most likely casualties of the Permian mass extinction, which occurred about 248 million years ago and eliminated almost all of the marine species and a good portion of terrestrial life as well. Might it happen again? In our epoch?

*Will there be a Holocene mass extinction, too?* With the single exception of our present Holocene epoch, the Permian experienced the largest and most severe mass extinction in the history of life on Earth. The Holocene encompasses only the last 10,000 years. Since we humans have evolved quickly into significant agents of extinction, a number of scientists have already agreed that we are *witnessing* such an event.

New York Zoological Society's David Western has speculated that "for the destruction of every two hundred square kilometers of tropical forest and one hundred thousand square kilometers of rangeland there is a resultant loss of hundreds, if not thousands, of species."<sup>69</sup>

Ed Ayres cautions us that we are not excluded from the possibility of extinction: "Only 2 percent of the species that have ever lived on Earth live on it now, and that percentage is falling as the spike of extinction rises. Most of the other 98 percent came and went before our species emerged.... If we can draw a generalization from several hundred million years of experience, it is that every species, sooner or later, either adapts to changing conditions or dies out ... it would be fatally arrogant to believe that the human species is exempt from this rule."<sup>70</sup>

Edward O. Wilson writes that presently "mass extinctions are commonplace, especially in tropical regions where most of the biodiversity occurs." The telling zones, he notes, are in the tropics, with Ecuador, Madagascar, and the Philippines containing the most hot spots: "Each of these countries has lost two-thirds or more of its biologically rich rain forest, and the remainder is under continuing assault." He also suggests that, globally, land species "are

vanishing at a rate one hundred to a thousand times faster than before the arrival of *Homo sapiens*.” He further warns that after the previous mass extinctions in the biological record, “evolution required about 10 million years to restore the predisaster levels of diversity. Faced with a waiting time that long, and aware that we inflicted so much damage in a single lifetime, our descendants are going to be—how best to say it?—peeved.”<sup>71</sup>

In *Natural Capitalism*, Paul Hawken, *et al.*, urge us to attend to the bigger picture and how we are threatening one-third of all fish species and one-fourth of all mammal species with extinction. They are especially troubled about how we are reducing Nature’s ability to recycle waste, clean air and water, and generate new materials: “In the face of this relentless loss of living systems, fractious political conflicts over laws, regulations, and business economics appear petty and small. It is not that these issues are unimportant but that they ignore the larger context. Are we or are we not systematically reducing life and the capacity to re-create order on earth? This is the level on which our discourse should take place, for it is there that a framework for both understanding and action can be formulated. In spite of what such signals as the GDP or the Dow Jones Industrial Average indicate, it is ultimately the capacity of the photosynthetic world and its nutrient flows that determine the quality and the quantity of life on earth.”<sup>72</sup>

Eriksson and Robèrt maintain that “Our health and wealth are completely dependent on the organized processing of matter in natural cycles.” In pre-industrial times, “photosynthesis more than made up for the degradation of matter caused by human activities” because cyclic flows of matter are the foundation for “all ‘perpetual’ processes.” In the present era, “human activities not only result in the accumulation of pollutants in the biosphere, they are also devastating ecosystems” including “the extinction of other species.” Perhaps most poignantly, they point out that it is impossible to “specify time parameters for the ultimate consequences of linear processing.”<sup>73</sup>

## Farewell Footprint

Now and again when you sense the sun’s warmth, ponder the sun’s many roles—in “driving” Nature’s cycles, in history and evolution, in sustaining life, and in its potential to pay all our bills. The sun is like a master mentor coach, helping us design our lives and world. It literally propels the life cycles on our planet, free of charge. Remember, too, that when we clog the flows, the sun’s magic loses some of its oomph. When we clog the flows, we are flirting with reverse evolution, even mass extinction.

Surely, whatever our disagreements, we can all agree now that the stakes are towering, extreme. The life cycles are teetering and out of balance. And, *our species* is responsible. What will it take to act in harmony with the Earth's cyclical processes? How can we design human systems for living within our means and on "current income" from the sun? Indeed, how can we create sustainability in every aspect of life, and quickly enough? The Natural Step research indicates that the only thing that can save us from the consequences of a world reeling on the edge of mass extinction is to revive the cyclical processes—and soon. Otherwise, maintains Dr. Robèrt, we most likely will not survive and prosper in the long term.

Fortunately, there are only four conditions for restoring this balance within the whole system of Nature and society. The Natural Step organization and its "Step Head" advocates refer to them as the "System Conditions," to which we now cheerfully turn.

## CHAPTER 5

# System Conditions

## Four Essentials to Fuse into Your Consciousness

*The world is very different now for man holds in his mortal hands the power  
to abolish all forms of human poverty and all forms of human life.*

—John F. Kennedy  
Inauguration Address (1961)

*Too many people drive their Land Rovers to the grocery store  
and think that “paper or plastic” is a meaningful choice.*

—Denis Hayes, Chair  
Earth Day 2000

### Foothold

Our present planetary thrust, as we have just seen, looks a lot like *reverse evolution*. After a 4.5 billion-year “cleaning up” operation and provoked by a mere two hundred years of industrial “messaging,” Earth now veers backward toward the noxious vapors of its infancy. Our species stands in grim need of a shift from mindlessly pressing the accelerator of mass extinction to a planet-wide consciousness of intentionally and rapidly re-aligning with conditions that will revive and stabilize the Earth’s systems and cycles.

Based on the evenhandedness of science, The Natural Step Framework serves as a compass for piloting us in a sustainable direction. Approaching the issues of Nature and Society from the systems perspective, the framework helps people see the whole picture, speak a common language, and decide how to reconstruct their lives and communities. Undergirded by the basic non-negotiable laws of Nature we cannot change or overcome, the framework guides people to a non-controversial consensus by employing four conditions essential for maintaining life and, hence, sustainable thriving societies.

To function over the long haul, the terms of Nature's Ultimatum require the redesign of human activities to be in harmony with the natural world... and with human needs worldwide. Yet, how exactly do we begin? A running start is possible through one of the great gifts of The Natural Step: the rendering of the scientific principles into concrete, easy to understand System Conditions:

### **The Four System Conditions (the brief version)**

In the sustainable society, Nature is not subject to systematically increasing...

1. concentrations of substances extracted from the Earth's crust
2. concentrations of substances produced by society
3. degradation by physical means, and,
4. in that society... human needs are met worldwide

With respect to the System Conditions, our ultimate sustainability objectives are to:

1. eliminate our contribution to systematic increases in concentrations of substances from the Earth's crust
2. eliminate our contribution to systematic increases in concentrations of substances produced by society
3. eliminate our contribution to the physical degradation of nature through over-harvesting and other forms of manipulation
4. contribute as far as we can to the meeting of human needs in our society and worldwide, in spite of the substitutions and dematerializations that will follow from meeting the first three objectives

For guidance on how to put each of the sustainability objectives into practice, consider the foundational intention of each condition:

1. System Condition One means replacing certain minerals that are scarce in Nature with abundant and benign substitutes, and using all mined materials efficiently
2. System Condition Two means replacing certain persistent and unnatural compounds with ones that are normally abundant or break down more easily in Nature, and using all substances produced by society efficiently
3. System Condition Three means drawing resources from only well managed eco-systems, using those resources efficiently, substituting

unnecessarily area-consuming activities with others and exercising general caution in all kinds of manipulation of Nature

4. System Condition Four means using all our resources efficiently, fairly and responsibly so that the needs of all our stakeholders, staff, neighbors, people around the world, and people who are not yet born stand the best chance of being met.<sup>74</sup>

Building a truly sustainable society—socially, economically, and ecologically—requires that all four conditions be in place. Unless System Condition Four is met, we cannot hope to meet the first three because people will not be fit enough to do so. System Condition Four, which is both socially and technologically challenging, is of equal importance in its “weight” to the first three scientifically based conditions. The sooner we fuse all four into our collective consciousness and day-to-day living, the better our chances of a promising life for all life and everyone’s great-great-grandchildren.

Sweden, the birthplace of The Natural Step, has the most experience applying the System Conditions. The results have been nothing short of phenomenal. Nationwide, municipalities have declared themselves eco-municipalities. Apartment complexes sport large organic community gardens and green houses. The entire school system has introduced the basics of sustainability across the nation. Major corporations and small businesses alike have begun bringing the System Conditions into their strategic planning and day-to-day operations.

The world’s largest furniture company, IKEA, for example, now offers a line of products made from wood harvested from “sustainable forestry” farms owned by farmers who once used pesticides and practiced other unsustainable methods. Such offerings contain no metals mined from the Earth’s crust. IKEA is moving forward to comply with the other conditions and demanding that their suppliers follow suit. The country’s largest oil company, OK Petroleum of Sweden, has chosen to phase out fossil fuels and develop an ethanol-based fuel derived from renewable organic matter.

The Natural Step Framework pleasantly surprises people who employ it. Relieved to know that it enables us to get out of our collective tight squeeze, they spot another bonus: business owners, government leaders, and people in general who have applied the framework have learned that being ecological also makes economic sense. The standards raised by The Natural Step have helped them gain economic advantage, live more healthfully now, and work towards preserving a healthy world seven generations hence.

The System Conditions serve as guiding principles in both personal and public life. Through their guidance, we can live more lightly on the Earth, be

fairer and more just, and co-create a better quality of life for all life. The System Conditions help dissolve violence and set the stage for realizing every person's potential in communities across the planet.

The Natural Step Framework has become a non-threatening way to communicate the need to discern and deliberate as we make decisions.... for the present *and* the future. If you are a home gardener, for instance, the framework gives you a means for thinking about each System Condition as you plan and maintain your garden. You will not be able to do everything right away. It may take several years before you can reach the vision of a sustainable garden. Still each season you can come up with new ways of handling your garden work until you meet all the System Conditions—the core essence of The Natural Step Framework.

In the meantime, your neighbors may want to share hybrid electric vehicles for car-pooling or common tools like the new solar powered robot mower. We can apply the System Conditions to the way we earn our livelihoods, the standards we raise for the quality of food we eat, and how we spend our time and money. Everything matters: our relationships, hobbies, neighborhoods, workplaces, transportation, entertainment, food, clothing, shelter, and how we stay warm or cool.

So that life may continue, we must make the System Conditions the reigning rules of our most challenging—and thrilling—game ever. Let us examine them more closely.

## Finer Focus

To put a human face on the System Conditions, let's look first at a place where oil and gas activities violated all four conditions for decades. For the people living in the “Westside Subdivision,” in southeastern New Mexico, the consequences have been devastating:

- death from cancer
- life-threatening medical problems
- enormous medical and health care costs
- physical and emotional pain and distress
- loss of income and earning capacity
- loss of market value and marketability of their homes
- loss of use and enjoyment of their home site properties, and
- serious contamination of their water wells, soil, and air

Because of these tragic repercussions, sixty-four members of the community filed a multi-million dollar lawsuit in October 1999 against a major oil company, its successor, and a subdivision developer. Over the years and at the expense of the people living in the Westside Subdivision, these companies derived substantial profits.<sup>75</sup>

Since 1946, “Big” Oil Company had been developing oil and gas operations on the properties where the Westside Subdivision now sits. In 1976, a residential subdivision developer began acquiring land in and around these operations. The lawsuit alleges that activities related to oil and gas production continued as the subdivision was being developed and even after people moved into their modest homes.

Legal documents describe the poignancy of the situation: “The cold hard truth is that the BIG Defendants have ignored the practices, standards, and guidelines which have been developed, written and preached by their own environmental departments, the State of New Mexico, and by the oil and gas industry, in general.... While the BIG Defendants have recognized that they have a duty to adequately monitor and maintain their operations, they have failed to do so, not in barren pasture, but in the front and backyards of family residences where such failures pose threats to the life and health of children and adults alike.... the very words published by the BIG Defendants were not the procedures practiced by them at these oil and gas properties. Fiscal choices were made to the detriment of their Westside neighbors and the Plaintiffs.”<sup>76</sup>

During the course of these operations, the suit alleges, BIG used, stored and disposed of many toxic substances. Preliminary testing identified: “Benzene, Toluene, Ethylbenzene, M & p Xylenes, o- Xylenes, p-Dichlorobenzene, Napthalene, Hydrogen Sulfide, Bromofluorobenzene, 1,2 Dichloro-ethane, Methylene Chloride, Tetrachloroethene, 2-methyl-napthalene, Trichloroethylene, Tetrachloroethylene, n-alkanes c13-o40, 2,6,10,14 Tetramethylpentadecane, 2,6,10,14 Tetramethylheptadecane, Carbon Tetrachloride, C11,C13 and C15, 2methylhexane, 2,3 Dimethyl-hexane, 2,3,4 Trimethylpentane, 2,4 Dimeethylhexane, UNDEC, TRIDEC, PENTADEC, OCT, PCE, TRPHC, 124TMB, Acenaphthene, Fluorene, C8H18, Chloroform, Acetone, Phenanthrene, Ra-226, Ra-228, Aluminum, Arsenic, Barium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Sodium, Vanadium, Zinc, Hydrogen Sulfide and excessive radioactive materials.”<sup>77</sup>

Many of these contaminants cause cancer or a myriad of other medical problems. Young children are particularly susceptible to their hazards. Furthermore, operators “disposed of” these substances and industrial solvents on

site, according to the suit, through evaporation, release, and negligent and intentional dumping, as well as in unlined or improperly lined pits. Some were poured directly on the ground, the plaintiffs claim, and allowed to remain on and under the properties that later became home sites.

These abandoned substances contaminated the air, the groundwater, and the soil, causing “a variety of serious, short-term and long-term health problems. These included but were not limited to respiratory disease, heart disease, cancer, fear of cancer, genetic damage, immune system impairment, neurological damage, and complications stemming from related health problems” and “an extremely high incidence of auto-immune disorders.”

Prevailing winds carried the toxic vaporous emissions and contaminated particulates from nearby operations into the subdivision where residents inhaled them. Other substances migrated through the soil, forming a contamination plume within the shallow aquifer under the homes. Monitor wells, soil borings, and other environmental assessments and investigations appear to confirm this migration. Remember the scientific principle that *everything spreads*.

In 1997 “a strata of black operational waste containing Toxic Substances was discovered underlying subdivision fill material.” Testing confirmed this “contamination was consistent with waste produced incident to oil and gas operations.” BIG’s own investigations revealed more contamination claims the suit. Some was found in the yards of residents.

Hazardous BTEX was contaminating both soil and shallow groundwater flowing under the subdivision where residents have water wells. In response, the New Mexico Oil Conservation Division targeted a portion of the oil and gas properties and the subdivision for environmental clean-up in 1998.

One community resident I interviewed in March 2000 reported that her son has kidney disease, and says she suffers from fibromyalgia and asthma, among other things. She also mentioned a recent cancer death down the street and wondered if there might be a connection between the contamination and the cancer. In the course of our conversation, I asked her if she kept a vegetable garden at her home. “Oh yes,” she raved. They had tomatoes and peppers of all kinds. I then asked her about the soil there... might it be contaminated? She had not thought about that.

The lawsuit alleges gross negligence, strict liability for past, present, and future contamination, public and private nuisance, trespass by virtue of invasion of toxic substances into and under the subdivision, negligent infliction of emotional distress, and a variety of damages ranging from punitive to health and property damage. Reminiscent of other lawsuits filed against industry, it causes us to wonder... Will it influence voluntary and mandatory

clean-up operations around the world? Will the injured parties and their relations change their fossil fuel habits? Will the length of time it takes for such suits to chip away at the unsustainable actions of our industrial society be too late?

Of course, part of what concerns us is how such horrific contamination, pain and suffering can be avoided in the future by using the System Conditions as guideposts for everyone involved. This tragedy does not have to be repeated anywhere... if society agrees to abide by the four System Conditions of The Natural Step.

### **System Condition One**

**In the sustainable society, Nature is not subject to systematically increasing concentrations of substances extracted from the Earth's crust**

Oil, gas, and uranium, obviously, are extracted from deep within the Earth's crust. Our society, addicted as it is to fossil fuels and nuclear power, is violating this condition big time.

Earlier we saw how the carbon dioxide emissions from fossil fuel burning are increasing the greenhouse effect, leading to global warming, dramatic sea level rises, and intense global climate change. If you were paying close attention to the list of toxic substances revealed in the investigation above you noticed that carbon dioxide was not even mentioned!

You also noted there were a number of substances from the Earth's crust in addition to oil and gas. Ra-226, for example, is the radium used in cancer therapy. Often found as a naturally occurring material when drilling for oil, it is highly radioactive and, with a half life of 1,622 years, will remain hazardous for about 20,000 thousand years.

Other naturally occurring radioactive materials (NORM) escape from their isolated asylum in the Earth's crust during oil and gas production. Children and adults have died painful deaths from exposure to NORM waste. One of the most insidious exposures has been through the innocent recycling of drill pipe into swing sets or fences around the homes of oil field workers. As a member of the State of New Mexico taskforce for developing NORM regulations for the oil industry in the early 1990s, I learned that many pipes had been irradiated during the drilling process. Few workers are adequately educated about the dangers of NORM wastes.

Other Earth crust metals and minerals associated with oil and gas production discovered in or near the embattled subdivision include: Aluminum, Arsenic, Barium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron,

Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Sodium, Vanadium, and Zinc.

Certain materials from the Earth's crust are more poisonous than others yet the public knows little of their dangers. Two common examples illustrate the need for our never-ending vigilance.

**Lead.** Discovered in Turkey more than eight millennia ago, lead is a poisonous, ductile bluish-white, dense metallic element. Extracted primarily from the mineral ore galena, the Romans and the Greeks knew more than 2000 years ago that lead smelting produced noxious emissions. As early as 100 BC, Greek medicine described lead poisoning. First mined, then smelted, lead is used in pipes and containers for corrosives, in solder and type metal, in bullets and radiation shielding, in paints, in some dental fillings, and in gasoline for antiknock additives.

The U.S. Agency for Toxic Substances and Disease Registry recently reported that “the burning of gasoline has accounted for 90 percent of lead placed in the atmosphere since the 1920s,” toxically exposing “a total of about 68 million young children... to lead from gasoline from 1927 to 1987.”<sup>78</sup>

In 1981, almost *a hundred years* after physicians in the United States first diagnosed childhood lead poisoning, a task force on regulatory relief led by then Vice President George Bush recommended *keeping lead in gasoline* and *eliminating* the planned phase-out of leaded gas begun in 1970. (Now you know where his son got the idea of relaxing regulations, like arsenic levels in drinking water!) For seventy-five years, beginning in the mid 1920s when tetraethyl lead was added to gasoline, a gross public betrayal transpired while the makers of leaded gasoline denied the health effects even though there were viable and safer alternatives.

The U.S. government “was complicit in the cover-up and even actively assisted the profiteers in spreading the use of leaded gasoline in foreign countries.”<sup>79</sup> For forty years, special interests—chiefly DuPont, GM, and Standard Oil—controlled “all scientific research regarding the health implications” of lead. They threatened independent scientists who attempted to set the record straight, fought the development of emissions-control devices and clean air legislation, and sued the Environmental Protection Agency over the phase-out of lead. These interests relented only when the U. S. Supreme Court refused to hear their appeal. Expanding their markets to the less-developed world, they increased the proportion of lead in their gasoline to serve profits, and ultimately moved “to reorganize their corporate structures to shield ownership and management from liability for blanketing the earth with a deadly heavy metal.”<sup>80</sup>

**Uranium.** In another sordid story of scoffing at the wisdom of System Condition One, the uranium industry deliberately betrayed American Indians when it recruited them to mine the mineral from which the heavy metallic element uranium is extracted and processed. The Dineh, also known as the Navahos, in the Four Corners region where Utah, Arizona, New Mexico, and Colorado meet, worked the uranium mines for the 1940s Manhattan Project and beyond. They died of lung cancer and heart disease at rates much higher than the rest of the population.

Like the European pitchblende miners of the 1700s, they died after an average of seventeen years of work in the mines. (Pitchblende and carnotite are the principal ores of uranium.) Their families also developed disease, and far too many of them died prematurely.

The reason was simple: the U.S. government did not require the minimum of safety procedures. Rather than providing safe drinking water, specialized work clothes, work site showers, and basic safety information, management looked the other way when miners drank poisoned water dripping from the mine walls or wore their clothes home where radiation spread.

Indeed, many nearby homes were built with mine tailings and radioactive rock. "It was the equivalent of living in a uranium mine," says Peter H. Eichstaedt, author of *If You Poison Us; Uranium and Native Americans*. Authorities could not plead ignorance. They kept the miners in the dark, pretending that uranium mining was safe until the mid-1970s after several newspapers and one doctoral dissertation published undeniable evidence to the contrary.

Through shrewdly written reports, the government had evaded the fact that miners had been dying from radiation and radon for more than 200 years in the European pitchblende mines of Schneeberg and Joachimsthal<sup>81</sup> System Condition One would curb such arrogance and tragedy.

**Concentration of Alien Substances.** The whole point of System Condition One is that these and other metallic elements, minerals, and gas have no natural rationale for collecting in the ecosphere. They *belong* in the Earth's crust. Nature possesses no processes for breaking them down and recycling them into useful building blocks for other natural substances.

You will recall that during the long process of evolution, such matter was safely sequestered in the Earth's crust, making it possible for life to emerge. Plants and animals did not evolve with an ability to metabolize or otherwise handle elevated or poisonous "doses" of lead, mercury, cadmium, and radioactive or other hazardous substances hostile to our life-support systems.

When persistent compounds from Earth's crust (fossil fuels, heavy metals, and minerals) increase in our biosphere, they threaten the natural flows that

support life in all its diversity and function. The basic science behind this reasoning reminds us of two principles. First, nothing disappears. According to the First Law of Thermodynamics and the Principle of Matter Conservation, matter and energy cannot be created or destroyed. Second, everything spreads. As described by the Second Law of Thermodynamics, matter and energy tend to disperse. *Eventually, all matter introduced into society will be dispersed into natural systems.*<sup>82</sup>

Thus, The Natural Step founders wisely counsel: “In a sustainable society, human activities such as the burning of fossil fuels, and the mining of metals and minerals will *not* occur at a rate that causes them to systematically increase in the ecosphere.”

Note well that these materials are not prohibited. They simply cannot systematically increase or concentrate in the ecosphere as they are doing today all over the world. That is because of the increasing thresholds of substances from the Earth’s crust, which, at some point, will adversely affect living organisms and ecosystems.

Unfortunately, in most cases, we do not know ahead of time how far we can push these thresholds nor do we often know the effects of interactions, the Nemesis Effect. Surprise events and unanticipated combinations of factors can play havoc with our plans and dreams, not to mention our health.

Problems occur when the natural balance between the Earth’s crust and the biosphere is disrupted. Any number of things can happen from global warming and acid rain, to the contamination of drinking water or metal toxicity all of which can be lethal at some concentration to humans and animals, plants and other living things.

Dr. Karl-Henrik Robèrt, Christian Azar, and John Holmberg, Ph.D., tell us that people can tip this natural balance at any point: “from the initial choice, quality, and quantity of mined materials, down to societies’ technological ability to safeguard the balance through recycling and reuse of a given substance.”

They add, “What concentrations are finally acceptable depends on how ‘ecotoxic’ a material is. Ecotoxicity must be measured both as the directly harmful effects on people and harm to the larger environment. However, because of the complexity of the ecosphere, ecotoxic effects are often not discovered for years, if at all, making it very difficult to predict what concentrations of a given material will lead to unacceptable consequences.”

They further advise, “In some instances increases in a material may have a positive effect at first, only to be followed by problems as concentrations increase. In many cases the acceptable concentrations have already been exceeded,”

leading to a “general rule: Do not allow human activities to cause deviations from the natural balance that are large in comparison to natural fluctuations. In particular, such deviations should not be allowed to increase systematically. Therefore, the minimum that must be achieved is a *stop* to these systematic changes.” [my italics]<sup>83</sup>

Because human activities have disturbed the natural balances between the Earth’s crust and the biosphere, today’s realities include not only the examples we have covered here. Tragic events like the cyanide poisoning of the Danube River, the Chernobyl accident in the Ukraine, and oil spills near the delicate Galapagos and elsewhere multiply, perilously tipping the balance.

**Implications.** Imagine a civilization based on renewable energy, a civilization with almost no extractive industries—almost no mining, drilling for oil or gas, and refining of matter from the Earth’s crust. Clearly, events like those noted above would be much less likely to happen under such circumstances, for humans would be well on their way to creating a sustainable society.

In our present *nonsustainable* society, marked by a fundamentally flawed relationship with the Earth, many people are recognizing that our reliance on extractive industries has become self-destructive. Economically and ecologically we are headed for something akin to collective hara-kiri. Obtaining fossil fuels, uranium and other substances from the Earth’s crust too often means exposing communities or workers to health debilitating and cancer-causing substances—nearly always without their knowledge.

Exposing children to lead through fuel exhaust as well as paint and other sources loads up their blood with metal lead counts and lowers their intellectual capacity. When money takes precedence over future generations whose mental abilities have been diminished through no fault of their own, we have reached an exceedingly sad state of affairs. Those responsible for such unsustainable practices sabotage the future.

Suffering from a new variety of the Buggy Whip Syndrome, those responsible for unsustainable policies intensely resist change. Special interests of the buggy whip industry, you may recall, fought furiously a century ago to stop the advent of the automobile, claiming it would harm the economy and jobs. Of course, the change took place and the economy flourished for much of the twentieth century, even as the combustion engine and fossil fuels flooded Nature and Society with pollutants and harmed the natural cycles.

It is time to get on the sustainable path. We can expect the economy to flourish again. This time, however, Nature and Society will flourish, too.

In the interim, we can embrace the *polluter pays principle*. Indeed, the insurance industry is already doing so. In a 1999 article entitled “Insurers Count

Costs of Climate Change,” the scale and cost of natural disasters today were compared with data from 30 years ago. The authors concluded that natural catastrophes have tripled in number and are costing the insurance industry fifteen times more today than they did in the 1960s.<sup>84</sup>

On-going denial of a connection between climate change and fossil fuel burning smacks of sheer lunacy. As Dr. Karl-Henrik Robert reasoned, it is “like sitting in a car, driving full speed ahead knowing all the while that there is an abyss up ahead. Unfortunately, you don’t know if it’s 50 miles ahead, 500 miles ahead, or 5,000 miles ahead. It’s misty and dark. What do you do? Do you brake the car and think? Or do you continue on at full speed, thinking about how comfortable it is in the car?”<sup>85</sup>

The first system condition requires society to implement *comprehensive* metal and mineral recycling programs, and to decrease economic dependence on fossil fuels and nuclear energy both of which are dependent on extracting material from the Earth’s crust. In other words, society will have to design new economic systems that are more harmonious with the natural world, more prone to enhancing health than promoting premature death. A sustainable society will rely on solar and wind energy, and renewable matter already here, rather than matter from the Earth’s crust.

## System Condition Two

### In the sustainable society, Nature is not subject to systematically increasing concentrations of substances produced by society

In the Westside neighborhood adjacent to the oil and gas production site we talked about earlier, more than thirty substances *produced by society* (not made by Nature or extracted from the Earth’s crust) have been found to be accumulating there. Among them several have been listed by the National Toxicology Program of the U.S. Public Health Service as substances “known to be” or “reasonably anticipated to be” carcinogenic, that is, cancer causing.

Both *benzene* and *diesel exhaust particulates* are on the list of *known to be carcinogenic* substances. Those detected in or near the subdivision that may *reasonably be anticipated to be carcinogenic* include, but may not be limited to, *1,2 Dichloro-ethane*, *Trichloroethylene*, *Tetrachloroethylene*, and *Carbon Tetrachloride*. Let’s look at a few of these more closely.

**Benzene and Cancer in Future Generations.** Benzene may have leaked from solvents, paints, degreasers, gasoline, or other supplies. It not only causes cancer, especially leukemia, in people exposed to it, but it also damages the

genes their unborn children will inherit, thus promoting cancer in future generations without direct exposure. As an industrial chemical, it is frequently used as a solvent, a gasoline additive, and in the synthesis of numerous chemicals. “The most significant source for release of benzene to the environment is from the combustion of gasoline.”<sup>86</sup>

**1,2 Dichloro-ethane in Your Indoor and Outdoor Air.** Used to fumigate insects in stored grains and mushroom houses, as a soil fumigant in peach and apple orchards, as an upholstery and carpet cleaner, as a solvent in textile cleaning and metal degreasing, as a “dispersant for plastics and elastomers such as synthetic rubber, as an ore flotation compound, and as an extractant in certain food processes,” 1,2 Dichloro-ethane has spread widely.

It has been found in urban and rural air (indoors and out) and water (surface, ground, and drinking), and especially near hazardous waste disposal areas. We inhale it in contaminated air, blown by the wind, sometimes for hundreds of miles. When heated to decomposition, it produces toxic fumes of hydrochloric acid. Workers most exposed to this substance are in the apparel and textile fields, chemical and allied production, business services, and petroleum and coal industry as machine operators, assemblers, production inspectors, checkers, and examiners.<sup>87</sup>

**Tetrachloroethylene, Your Clothes, and Cancer Clusters.** Used primarily in dry cleaning and textile processing, in production of fluorocarbons, and as a degreaser and solvent, Tetrachloroethylene has also spread widely. It is also used as an insulating fluid and cooling gas in electrical transformers, an extractant for pharmaceuticals, a pesticide intermediate, and a de-worming agent. It is used to a lesser degree in adhesives, aerosols, paints, and coatings.

Inhaling or touching it is the primary way we are exposed to it, although the chemical can be absorbed after eating or drinking something containing it. The cancers most frequently observed in connection with this chemical include lymphosarcomas, leukemias, and cancers of the skin, colon, lung and urogenital tract. Clusters of cancer (of the larynx and bladder and chronic lymphocytic leukemia) have been related to the dry cleaning industry.<sup>88</sup>

**Trichloroethylene and Brainless Babies.** In addition to cancer, lupus, kidney damage, immune system deficiency, and damage to the blood system, the skin, and joints, Trichloroethylene, also known as TCE, is suspected of causing such birth defects as anencephaly—an absence at birth of the brain and spinal cord. TCE is a highly toxic chlorinated solvent, which negatively affects the central nervous system in the developing fetus as well as in children and adults.

Tests on water wells along the Mexican-U.S. border, chiefly near maquiladora factories, have found hazardous levels of multiple contaminants,

including TCE.<sup>89</sup> Statistics indicate the rates of stillborn brainless babies in some of these areas are four to ten times above average. You may recall the epidemic of such births in and near Brownsville, Texas, during the early 1990s. 126 cases of anencephaly were reported there between 1980 and 1992.<sup>90</sup> The *official* jury is still out as far as the cause of human babies born without brains. We can, however, speculate that if human anencephaly escalates, our species will have a challenge begetting future generations.

**Our Chemical Craze.** Only a fraction of all the substances produced by society have been tested for their health effects. Hence, we really do not know how hazardous most chemical substances are by themselves, much less how they affect us in their potentially infinite interactions with each other. Outside of some 100,000 commercially available and mostly untested synthetics, the number of artificial substances produced by society is colossal.

WorldWatch Institute Senior Researcher Anne Platt McGinn estimates there are, globally, more than 20 million synthetic chemicals (increasing by over 1 million a year, or one new synthetic chemical *every 27 seconds*). Most of these remain “academic curiosities, or rapidly forgotten attempts to produce a new pesticide, or solvent, or whatever.”<sup>91</sup>

McGinn reports that each year about 1,000 new synthetic substances “enter the chemical economy, either as ingredients in finished products, or as ‘intermediate’—chemicals used to make other chemicals.... But the total number of synthetics in the environment is probably far greater because of the breakdown products that result from the decay of commercial substances.” Moreover, “fewer than 20 percent of the chemicals in commerce have been adequately evaluated for toxicity, according to a 1984 National Academy of Sciences report... a reflection of the magnitude of the problem that this 16-year-old report should still be widely cited.”<sup>92</sup>

Although there are far too few official tests for health effects, unfortunately, many “tests” are unintentional. While waiting for authoritative investigations to take place, we and other living things have become guinea pigs in a mega-biological experiment. Certain of our politicians have decided that one way to “progress” is to let industry *voluntarily test* their new chemicals for toxicity, “a practice that invites obvious conflict of interest,” says McGinn.

**Phasing-out Worst Offenders.** Another way to cut through the enormous numbers of synthetic substances threatening our well-being—and handle the red tape at the same time—is to look at classes of chemicals and phase-out the worst offenders. An extended family of chemicals from which we are just beginning to wean ourselves is the one that brought us Agent Orange and dioxins. Known as POPs (persistent organic pollutants), this

class of chemicals is non-biodegradable, highly toxic, often cancer causing, and persistent.

Enduring sometimes for thousands of years and far removed from the “organic” in “organic veggies,” POPs are “organic” only because of their special carbon molecular structure. Inorganic chemicals occur in nature, like nitrogen, sulfur, nitric oxide or sulfuric acid. Organic chemicals are synthetic and contain carbon in some form. Highly fat soluble, they concentrate in living tissue. Occurring in forms that allow them to travel great distances, geographically and genetically, POPs have now spread almost everywhere thanks to the widespread success of business and industry and our vague grasp of what damage they may eventually wreak.<sup>93</sup>

**Implications.** Given that we are awash in a global sauna of chemicals completely alien to life’s metabolism, is it any wonder that most of the nations in the world recently negotiated a treaty to phase-out POPs? The “Dirty Dozen” POPs list includes PCBs, dioxins and furans and nine pesticides (Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Mirex <sup>TM</sup>, and Toxaphene <sup>TM</sup>). All of these are organochlorines of which there are around 11,000. The riskier ones mimic hormones, compromise immune systems, promote cancer, produce sexual deformities. Because they are stable, they continue to accumulate in the environment or in human or animal fat tissue doing their dirty work.

Dioxins and furans, both extremely hazardous, are by-products of various human activities, particularly municipal incineration. The best way to reduce them is to keep chlorine in all its forms (including plastics, especially PVC, which is 45 percent chlorine) out of the waste stream. That, of course, means finding substitutes and not using chlorine. For starters, we can shift from PVC to chlorine-free polyolefin plastics, from benzene to glucose, from conventional paper mills that depend on chlorine bleaches to chlorine-free mills, from bleached coffee filters to unbleached, and from laundry bleach to lemon juice and sunshine!

Obviously, we need to end our addiction to persistent human-made substances. At the minimum, we need to find ways to prevent their increase in Nature so that they are not produced at a faster pace than they break down by natural processes of assimilation, if they can break down at all.

Since we cannot predict the outcomes of thousands of chemicals and their multiple interactions, it makes sense to many people to follow the “Precautionary Principle.” Designed to protect us from ourselves, this principle has us ask the chemical producer-polluter to prove to us that the risks are negligible, that the benefits outweigh the risks, that the pleasure will be far greater than

the pain. Further, we can assume that, as McGinn says, “in certain chemical classes—organochlorines, for example—any new compound is dangerous.”

Even more precautionary, in my view, is complying with the System Conditions. The science behind System Condition Two is based on the natural laws we have discussed before. These toxic compounds will spread because everything spreads. They will not disappear, because nothing disappears. Made by humans, they will not biodegrade because they are not natural, not part of Nature’s cycles. They will therefore increase their concentration in the natural system beyond the limits acceptable for human health and the well-being of all living systems.

### System Condition Three

**In the sustainable society, Nature is not subject to systematically increasing degradation by physical means**

Bountiful natural systems are essential for sustaining life on Earth. When human productivity clashes with Nature’s productivity, however, the outcome can be compared to a compromised immune system, which tends to deteriorate and stop operating sooner or later. The natural physical surfaces of the planet, such as the food-bearing soils, the weather-creating oceans, and the oxygen-yielding forests, will suffer ruin unless they renew themselves faster than they are destroyed by human activity.

An extreme example of what can happen if we violate System Condition Three is the Sahara Desert, “the largest man-made desert” on our planet. Once a productive region with trees and green plants, today the dry, barren sands expand more than 20 miles a year, supporting little or no vegetation.<sup>94</sup> Green plants, as we have seen, are essential to our survival. Yet, human “progress” in the Amazon, Indonesia, and other forested regions persists as if there were no such thing as Nature’s Ultimatum—as if we were not utterly dependent on Nature’s physical basis of productivity or the biological diversity of Nature.

**A Riveting Metaphor.** The U.S. Fish and Wildlife Service has come up with an engaging story for their Kids Corner web site. They call it the “Biodiversity Metaphor” and it is most appropriate for our discussion concerning System Condition Three.

“Imagine this nightmare: You’re sitting on a plane that’s ready to take off, looking out the window. Suddenly a mechanic walks up to the wing and removes several of the rivets that hold the wing on. You wonder what he’s up to, but then the plane takes off before you can find out, and you figure that a few less rivets won’t make much difference anyway. At the next airport, two mechanics

start removing rivets from the wing, and you start to worry. But the plane takes off again before you can find out what's going on. When you land again, five mechanics start removing rivets like crazy! Now you're really worried! How many rivets can be removed before the wing falls off and causes the plane to crash? Which rivet will be "the last one"? Before the plane takes off again, you wake up."<sup>95</sup>

This would not be such a riveting (pardon the pun) metaphor were it not for the reality of human activity rendering the planet damaged and life forms—including the human lineage—vulnerable to disease. Residents of the Westside Subdivision can surely relate to this nightmare even if they are not aware of the full extent of the physical destruction taking place in their neighborhood's ecosystem. They know all too well the severe impact on their own health.

Just as you may wonder how many more rivets can be removed before the wing falls off the airplane, System Condition Three gives us a prism to look at the whole spectrum of human dismantling of naturally productive ecosystems. System Condition Three invites us to ask, How many more species (rivets) have to vanish before the web of life fails (the wing falls off) and the planet (plane) crashes? Or, how many more habitats (tropical rainforests, coral reefs, coastal wetlands, old-growth forests in the temperate zones, and tall grass prairies) can humans disrupt before the capacities of ecosystems break down and Nature's ability to restore itself aborts? Indeed, how can we keep enough of the "rivets" of genetic heritage in place for deploying survival tactics in the face of threats?<sup>96</sup>

**Don't Mess with the Planet.** System Condition Three reminds us that, in a sustainable society, the physical resource basis for *productivity* in the ecosystem (such as the availability of fresh water), and *biodiversity* are not systematically impaired by manipulation, mismanagement, over-harvesting, or displacement. It focuses on the larger physical picture of ecosystems, ecosystem services and the biosphere as a whole. System Condition Three prompts us to ponder: Is the biosphere healthy?

Are natural processes still capable of regenerating healthy life forms—plants and animals, babies with intact brains? Has misguided human activity deteriorated the productivity of the ecosystem by harming the quality of the soil, water, and air? Has human activity negatively influenced the biological diversity of the ecosystem?

System Condition Three prompts me personally to ask regularly, "How have humans 'messed with' the planet today?" That inspiration comes from "Don't Mess with Texas," the Texas Department of Transportation's catchy slogan for its anti-litter campaign. Texans hear it on radio and television and see it

on billboards and bumper stickers all around the Lone Star State. Prior to launching that campaign in 1986, surveys indicated that white males between 18 and 24 years of age were most responsible for the litter along Texas highways. Thus, “Don’t Mess with Texas” won hands down over the mundane “Keep Texas Beautiful” or “Pitch-In.”

During the first six years of the campaign, litter was reduced by 72 percent, proving the slogan to be a wise selection. Although there is a big difference between ecosystem manipulation and mere litter, similar catch-phrases apply to System Condition Three:

- “Don’t Mess with the Earth’s Natural Systems”
- “Don’t Mess with Westside’s Life Support Systems”
- “Don’t Mess with Nature’s Cycles”

While System Condition One deals primarily with mining substances from the Earth’s crust (the lithosphere) and System Condition Two focuses on substances produced by society’s chemical and pharmaceutical industries (the technosphere), System Condition Three relates directly to the ecosphere. “Messing with” the ecosphere compromises the integrity of resources, or destroys their productive capabilities.<sup>97</sup>

**Productivity, Stability and Genetically Manipulated Organisms.** On a weightier note, if the Earth’s crust is off limits to a large degree, according to System Condition One, society will be even more dependent on the productivity and stability of the ecosphere.<sup>98</sup> Thus, we must be especially vigilant about System Condition Three.

Human activities that violate System Condition Three lead to turning

- forests into deserts by clear cutting, fire suppression, and other mismanagement
- healthy soil into eroded and degraded land (soil is hard to restore)
- rich biodiversity with its beneficial life forms and eco-systems into extinct plants and animals
- productive green spaces and their photosynthetic capacity into asphalt roads, landfills or dumps, and urban sprawl
- fresh water into polluted aquifers, lakes, streams, and rivers
- flourishing oceans and seas into over-harvested and polluted dead zones
- stabilizing functions of the ecosphere into deteriorated or, worse, un-restorable functions

The *stability of a particular area* is dependent on its diversity with regard not only to the number of species in that area but also the genetic variation within species and the variation of ecosystems within that area. Genetically manipulated organisms violate System Condition Three because, at minimum, they destabilize the diversity of an ecosystem.

We know from Cornell University entomology professor John E. Losey and his colleagues' May 20, 1999, *Nature* article that Monarch butterfly caterpillars died when they fed on milkweed dusted with corn pollen blown from nearby genetically engineered corn.<sup>99</sup> With millions of acres planted in genetically manipulated crops, stability is far from assured.

Furthermore, certain genetically manipulated organisms damage the microorganisms and *mycorrhiza* in the soil, destabilizing the cycles, especially the nitrogen cycle, and health of the soil thereby lowering crop yields, increasing crop disease, and raising fertilizer costs. Such outcomes are very different from corporate biotechnology's promise to save billions of people from a future of hunger and starvation.<sup>100</sup> Moreover, massive plantings of genetically engineered crops dissolves the possibility of genetic variation and rich species diversity. It is like a slow nuclear holocaust.

The *biological productivity of a particular area* relies on the balance between the harvesting of a biological resource (forests, fisheries, fresh water, wild game, etc.) and the natural regeneration rate of those resources. If you depend on an aquifer for your drinking water, as millions of people do, how society manages and manipulates the land areas around you affects your supply of freshwater.

The development of more and more subdivisions decreases the natural refilling of the local aquifer because more and more people draw down the water stocks. Indeed, development of almost any kind (commercial, industrial, or residential) can threaten the quality of the water. In the Westside subdivision, the poisoning of the aquifer obviously diminishes the quality of the water in that vicinity. The refilling of the aquifer is dependent on rain and soil percolation. If the soil itself is poisoned, it stands to reason that the water flowing through it to the aquifer will itself carry and spread many of the toxins found in the soil and the air. When an aquifer is as large as the Ogallala, which stretches from the northern plain states of the United States south to West Texas and southeastern New Mexico, the impact can become massive.

Even in regions that depend on surface waters such as lakes for freshwater, the water stocks are limited and their natural refilling needs to be monitored.<sup>101</sup> Lakes are drying up all over the planet, including in Afghanistan, Iran, and other places in turmoil. Before allowing further manipulation or

mismanagement of land areas and the further encroachment on the surrounding productive natural areas, people dependent on surface water would benefit enormously from careful monitoring and corrective action.

**Implications.** Such monitoring, of course, requires the upstream thinking we discussed in Chapter 3. When the problems are already evident, it is usually too late or outrageously expensive to go back and repair the damage. Hence, one of the enormous values of this and the other System Conditions is the ability to foresee and avoid downstream problems when a family, community, or business project is in the planning stage.

Violating System Condition Three also diminishes the sun-driven capacity of Nature to process waste into resources. You will recall from previous chapters that this ability is the heart of ecological sustainability. Civilization's health and prosperity depend on the enduring capacity of Nature to convert waste into new resources. For that to happen, renewal and humans working in harmony with natural cycles are essential.

System Condition Three refers to preserving the integrity and stability of *productive natural* systems in the ecosphere (healthy soils, clean air, fresh water, cyclical systems) and the *biodiversity* of Nature. Over-harvesting, mismanagement, manipulation, or displacement of natural systems or cycles systematically diminish ecosystems and species.

When we tamper with ecosystems, we impair their productive capacity, their unduplicatable services, and priceless diversity. In a sustainable society, we know that our health and prosperity depend on the enduring capacity of Nature to provide us with renewable resources rendered from waste metabolized through the sun-coached cycles. Let us avoid taking more from Nature than she can replenish.

### **System Condition Four**

**In the sustainable society, human needs  
are met worldwide**

While the previous System Conditions dealt with sustainability in the *ecosphere*, System Condition Four tackles sustainability in what The Natural Step training calls the "socosphere" and the "technosphere." It challenges us to make social justice and appropriate technologies towering priorities. Indeed, System Condition Four takes exception to technology as *the* cure-all. It focuses on human needs fulfillment and efficient use of our dwindling resources. This Condition relates to social and organizational transformation and sustainable innovations in technology.

System Condition Four brings us full circle: back to the tight squeeze of the resource funnel where we began. This condition reminds us that the demands on natural resource and social systems by more than six billion human beings are relentless, immense, mounting and urgent. It prompts us to scrutinize human needs—our own, those of our loved ones, and, since everything is connected, those of all peoples, cultures and epochs yet to be. Meaningfully, it spurs us to explore our understanding of fairness and efficiency and to what extent we need to weave them into our social fabric.

**Easter Island and Status Symbols.** A microcosm of what may transpire on a global scale, if we ignore System Condition Four, can be glimpsed from the story of Easter Island. Isolated from the nearest continent, South America, by a stretch of Pacific Ocean as wide as a continent itself, the 64 square mile speck of barren wasteland is best known for the role it played in *Kontiki*. You may recall its mysterious ancient massive sculpted heads. In some cases, the statues weighed as much as eighty tons.

Eighteenth century explorers reported the forlorn remnants of the island's society to be "devoid" of large timber, strong rope, wheels, draft animals or other power sources except for their own human brawn.<sup>102</sup> Late twentieth century DNA tests on prehistoric skeletons confirmed that the first settlers were of Polynesian origin. Radiocarbon dates on archeological artifacts linked with early human activities indicate the first settlers arrived about 1500 years ago. Statue construction peaked between 500 and 800 years ago. Archeologists estimate the population may have grown to 20,000 people and then dwindled down to around 2,000.

Pollen analysis from pond and swamp sedimentary core samples indicates that the island was a subtropical forest paradise with palm trees predominating for the last 30,000 years until about 1,200 years ago when the forest destruction began. 600 years ago the Easter Island palm became extinct. It would have been "ideal," claims Jared Diamond, "for transporting and erecting statues and constructing large canoes."<sup>103</sup>

The excavations of early garbage heaps by David Steadman, of the New York State Museum at Albany, testify through the bone evidence that the animal world of Easter Island furnished plenty of meat, especially porpoise, for the early islanders' stew pots, but few fish. Sea and land birds' bones were common, and so were those of rats which had appeared at the same time as the first settlers.

These "treats" were cooked in wood-fired ovens... wood from the island's once bountiful forests. When the wood ran out, they were no longer able to build canoes necessary for harpooning porpoises, whose bones disappeared

from garbage heaps about 500 years ago. Other traditional meat sources vanished as well. The islanders turned to chicken and, alas, to cannibalism—the human bones are there in the garbage heaps contemporary with the evidence of the forest and species extinction. Other islanders starved and some of them became preserved mummies.

From the pollen and bone evidence, Jared Diamond deduces the island's unwritten thousand-year history from the time settlers first set foot on the island paradise until life-support systems self-destructed. The original Polynesian colonists “found themselves on an island with fertile soil, abundant food, bountiful building materials, ample lebensraum, and all the prerequisites for comfortable living,” Diamond writes. “They prospered and multiplied. After a few centuries, they began erecting stone statues on platforms like the ones their Polynesian forebears had carved. With passing years, the statues and platforms became larger and larger, and the statues began sporting ten-ton red crowns—probably in an escalating spiral of one-upmanship,” he surmises, “*as rival clans tried to surpass each other with shows of wealth and power.*” [my italics]<sup>104</sup>

Is it possible that the status symbol syndrome—trying “to surpass each other with shows of wealth and power”—led to the downfall of the Easter Islanders? Is competition “to surpass each other with shows of wealth and power” central to our own tight squeeze?

To continue with Diamond's interpretation: “As forest disappeared, the islanders ran out of timber and rope to transport and erect their statues. Life became more uncomfortable—springs and streams dried up, and wood was no longer available for fires.” He continues, “local chaos replaced centralized government and a warrior class took over from the hereditary chiefs.... By around 1700, the population began to crash toward between one-quarter and one-tenth of its former number. People took to living in caves for protection against their enemies. Around 1770 rival clans started to topple each other's statues, breaking the heads off. By 1864 the last statue had been thrown down and desecrated.”<sup>105</sup>

In speculating about Easter Island's ruin, Diamond suspects that it took place “not with a bang but with a whimper.” Moreover, he conjectures that anyone who might have blown the whistle about the forest destruction would have been “overridden by vested interests of carvers, bureaucrats, and chiefs, whose jobs depended on continued deforestation.” With the singular exception of the elders, who may have remembered how things were decades before, virtually everyone else failed to perceive the changes taking place because the deterioration of the island's social fabric and resource base happened slowly. Thus, uncannily like our own situation today, special interests pressed the undoing of civilization.

How different the outcome might have been for the Easter Islanders had they honored System Condition Four, or even System Condition Three, notably the elements relating to the loss of biodiversity and the mismanagement of natural systems. In the context of the islanders' shrinking resource base, they totally disregarded efficiency, fairness and human needs.

**A Special "Efficiency."** System Condition Four implores us to do the opposite. We need to pay far closer attention to its essential requirements of a sustainable *society*: efficiency, fairness and human needs. Closely related, these requirements often intersect and overlap, reminding us yet again that everything is connected. The Easter Islanders apparently had lost any knowledge base, primeval memory or, indeed, spiritual principles relating to sustainability they may have honored once upon a time.

Unlike them, we have no excuse. Rather, at the click of a computer mouse—or a visit to the local library, we can access abundant data telling us what happens to civilizations that take the unsustainable path. Furthermore, we now know the principles and guidelines, through The Natural Step Framework, that move us in the sustainable direction.

Let's examine then the three requirements of System Condition Four, beginning by clearing up what The Natural Step training intends by the word "efficiency." In order to become sustainable, "we need to be *efficient* with regard to resource use and waste generation."

The word "efficient" may conjure up thoughts of the conventional business term. Business efficiency usually signifies the seeking of maximization of profits and employee productivity. Business efficiency seeks the least uncertainty or lowest risk to the financial bottom line. The word may also evoke the much embraced current business concept, "eco-efficiency," used to represent "incremental improvements in materials use and environmental impact," as the authors of *Natural Capitalism* note.<sup>106</sup> Those are not the meanings intended here.

Rather, we use the term "efficient" in the context of natural resources and human needs to mean "doing far more with less and with the intent of *responsible resource use*." Instead of employee productivity, here we seek resource productivity, although most organizations that implement the framework note a special bonus well beyond the profitability encountered: skyrocketing employee morale.

The authors of *Natural Capitalism* describe a strategy of "radical resource productivity" which saves both resources and money and also improves quality of life on a global scale. This strategy is also known as Factor Ten. To illustrate, Factor Four means a 75 percent reduction in energy and materials intensity; Factor Ten stands for a 90 percent reduction.

Such reductions can dispense with “the massive inefficiencies that are causing environmental degradation [and which] almost always cost more than the measures that would reverse them.”<sup>107</sup> This strategy also enables developing countries to avoid the damaging mistakes made by the industrial nations since “radical improvements in resource productivity expand their [the developing countries] possibilities for growth, and can help to ameliorate the polarization of wealth between rich and poor segments of the globe.”<sup>108</sup>

Furthermore, within the technosphere, we can be creative around how to use fewer resources to make more of services or products. We may find ourselves recycling, reducing, reusing, and eliminating waste whenever possible—the keys to efficient use of resources. They simulate Nature, which is innately efficient while most current human technologies are not.

Senior Scientist at The Natural Step/US Dr. George Basile suggests we have a lot to learn from Nature: “There is opportunity in system condition four for *people to work with and within the system—to be efficient in the same way a tree is efficient*. A tree throws off branches and leaves, blows off water and oxygen, and finally falls flat and sprawls on the ground. Yes, it makes a huge mess, but a tree is still efficient within the system because the ‘waste’ it produces is used as a resource for something, or someone, else. We can shift from linear models of infinite resource use and infinite growth to *cyclical models of infinite transformation and change*. This is how nature works.”<sup>109</sup>

Overall, we are still a bit far from that shift, of course. The entire economy is “less than ten percent—probably only a few percent—as efficient as the laws of physics permit,” maintain the authors of *Natural Capitalism*. The economics of *imitating* natural processes (known as “bio-mimicry”—to mimic biological forces of Nature), however, is changing that and astounding industrial designers and process engineers particularly because there is no waste in Nature!

An example hints at the infinite possibilities: “The abalone generates an inner shell twice as tough as our best ceramics, and diatoms make glass, both processes employing seawater with *no furnaces*.” [my italics]<sup>110</sup> Seawater, naturally, is one of our most prevalent resources on Earth, aka the Water Planet. Furnaces happen to be one of our most inefficient energy suckers.

Learning from Nature is vital if we are to become more efficient in the use of resources.

While The Natural Step refuses to be prescriptive, System Condition Four does challenge us not only to do our part to improve technical and organizational efficiency, but also to live using fewer resources, especially in affluent areas. In the sociosphere, over-consumption, especially in the United States, accounts for enormous inefficiencies.

David Pimentel maintains that “Each American consumes about 50 times more goods and services than the average Chinese citizen.”<sup>111</sup> Since consumption tends to expand faster than technology, the overall efficiency issue is also a cultural problem, not just one of technology. We will have to get in the habit of starting “upstream” where we define for ourselves the notions of “efficiency” and “enough.”

This is what China must do if it wants to have enough water for food crops in the future. It appears, however, that China is choosing the linear consumption/industrial model. Lester R. Brown, Chairman of the Board of the World Watch Institute, which, for the last couple decades, has published the highly respected annual report *State of the World*, tells us that the water table under Beijing, China, has fallen 200 feet in the last 35 years. It fell 8 feet in 1999 alone.

Water shortages are showing up in many of China’s northern reaches where: “the demand for water outstrips the supply. Water tables are falling. Wells are going dry. Streams are drying up, and rivers and lakes are disappearing. Under the North China Plain, a region that stretches from just north of Shanghai to well north of Beijing and that produces 40 percent of China’s grain, the water table is dropping by an average of 1.5 meters [about 5 feet] per year.”<sup>112</sup>

In addition to serious aquifer depletion, the Chinese government diverts much of the water that can still be found in rivers from agricultural sectors to the cities and to industry. World Bank projections indicate that within a decade water demand in urban centers will grow by sixty percent and in industrial sectors by sixty-two percent. “The resulting prospect of massive grain imports and growing dependence on U.S. grain leads to sleepless nights for political leaders in Beijing,” writes Brown.

Efficient use of water will most likely involve a price hike, “fraught with political risks” since “raising water prices in China is akin to that of raising gasoline prices in the United States.” Thus, Beijing policy makers have “announced that in the competition for water, cities and industry get priority—leaving agriculture last.” China’s policy may “disrupt world grain markets,” warns Brown, and their water crisis has the potential to inflate “food prices for the entire world.”<sup>113</sup>

Indeed, it may take such a disruption to motivate people to use resources efficiently. The question is, will it be too little too late?

**Fairness.** The next requirement of System Condition Four is *fairness*. To use resources fairly implies a just and equitable distribution of resources in the best interest of *all concerned*. Achieving equity is indispensable for upholding social stability and for obtaining the collaboration required for making the

inventive shifts implied by the first three System Conditions. Put differently, fair resource use is in your own self-interest.

When one billion people lack adequate nutrition while another billion have more than they need, a lack of equitable needs satisfaction worldwide clogs the narrows of the metaphorical funnel. When commercial interests exploit people and their cultural integrity, a lack of justice will hinder momentum toward sustainability. Human needs on either side of such gaps, as we shall see, cannot be fulfilled satisfactorily.

Fulfilling human needs worldwide and accounting for future generations will require the distribution of resources from Nature *where they are most needed* and in a just, efficient, and effective manner. Fair distribution of resources may seem like a radical intention because we are so habituated to gross gaps between the rich and the poor.

Indeed, the combined wealth of the richest 225 people is one trillion US dollars, equal to the annual income of the poorest 2.5 billion people.<sup>114</sup> In just such tight squeeze situations, injustice foments increased violence and terrorism and *unfair* distribution of resources begins to look like a real lose-lose proposition.

System Condition Four, together with the funnel, provides a clear picture of how untenable the present distribution system has become. The walls of the funnel continue to narrow the passage to a healthy and prosperous future for everyone. Since everything is connected, unless we put fairness directly into the framework, we cannot begin to live and work more sustainably. The pressures and costs—personally, economically, socially, and ecologically—will escalate, making it all the more difficult to navigate the narrows of the funnel leading to a sustainable society.

Among the elements contributing to these pressures are *overpopulation*, *economic inequities*, *over-consumption*, *inappropriate technology*, and *dysfunctional organizations*. All are outgrowths of unfair distributions of resources. Each plays a key and *interrelated* role in the lack of compliance with System Condition Four. Bear in mind that meeting System Condition Four provides a convenient way to avoid violating the first three System Conditions.

**Overpopulation.** The fairness requisite implies an improved means of addressing human population growth. Although the U. N. has announced subtle reductions in population projections, the planet's present human population already stresses the survival of living species. With its ravenous appetite for resources and waste, today's global population can yet lead to the systematic decline of the Earth's ecosystems and their collective capacity to meet the demands of everyone.

Paradoxically, while population increases, the survival rate among children in poorer countries has been far lower than elsewhere. A cemetery in Monterrey, Mexico set aside just for children brings this home. About half of the children in developing countries die before the age of 15.<sup>115</sup> The lack of government sponsored social security in these regions fosters the procreation of large families since a poverty-stricken parent's only "security" is to "self-insure" that at least one of their children will survive long enough to care for them in old age.

Other difficulties loom on the horizon. When the United Nations Commission on Population and Development opened its 33<sup>rd</sup> Session on March 27, 2000, the Director of the Population Division, Joseph Chamie, told the Commission that global changes had wrought a "new international population order"—changes that have profoundly influenced social and economic conditions.

Tens of millions of "environmental refugees" wander from place to place seeking a safe haven, displaced by natural or environmental disasters or war, famine, or corporate development projects requiring what the World Bank in 1994 called "involuntary resettlement."<sup>116</sup> Floods, droughts, war and terrorism in Afghanistan created four million refugees alone in 2001.

International migration has caused a "brain drain" in a number of developing countries, while the "feminization of aging" (the large numbers of women surviving into their elder years in certain countries) raises specific problems in health care, social security and social integration mainly in the developed countries.

HIV and AIDS continue to play a tragic role, especially in Sub-Saharan Africa. Infant and maternal mortality persists in the developing countries. In 1998, 500,000 women died worldwide from complications related to pregnancy and childbirth, with nearly all of the deaths in developing regions. Most childbirth deaths "could have been prevented if adequate resources and services had been available. Universal access to high-quality family planning and reproductive health services would address the root cause of such tragedies."<sup>117</sup>

Lester Brown insists that "if developing countries cannot stabilize their populations soon, many of them face the prospect of wholesale ecosystem collapse."<sup>118</sup> Starvation on a scale we cannot imagine will surely follow. Everything is connected, everything spreads. We are arrogant to think that we are safely isolated from the consequences.

**Economic Inequities.** Holding international stature as a spokes-person for the Third World, Dr. Oscar Arias, former president of Costa Rica, devoted the proceeds of his 1987 Nobel Peace prize to the formation of the Arias Foundation for Peace and Human Progress. He travels the globe urging people to

immediate action concerning the grave state of the poor in the developing world, often pointing out the following distressing facts:

“40,000 children die each day from malnutrition and disease. Water contaminated by sewage is estimated to kill two million children every year. Only 30 percent of the population in Delhi, India, have access to a sewage system. In Karachi, Pakistan, only 20 percent have such access. Some 840 million go hungry or face food insecurity. Nearly one third of the people in the least developed countries are not expected to survive to the age of 40. 1.3 billion people live on incomes of less than one dollar a day. 1.5 billion people lack access to health services. 1.3 billion people lack access to potable water. Nearly one billion people are illiterate.”<sup>119</sup>

To change this situation will require: 1) achieving greater fairness, basic for social stability, and 2) making human security a higher priority. “Whether consciously or not, many individuals allow their drive for macroeconomic success,” laments Arias, “to trample over the most vulnerable of our society.”

Indeed, the most flagrant examples of distribution of wealth in the world can be found in Latin America where: “The income gap that exists between rich and poor is by far the widest and most profound on this planet. Inequity, however, does not only affect the poor. Over the course of Latin America’s history, severe income disparity has provoked a bloody and long-lived cycle of insurrections which has claimed thousands of lives.”<sup>120</sup>

**Over-consumption.** For almost 350 years, members of the Religious Society of Friends (Quakers) have advocated peace and social justice. The Friends Committee for National Legislation links social injustices with unsustainable economic and ecological pressures, aligning themselves, perhaps unknowingly, with System Condition Four, and underscoring the role of over-consumption:

“Globally, *over-consumption* spreads and deepens human suffering and puts the earth under great stress. High rates of consumption and pollution in our country magnify this problem and result in huge inequities in the distribution of the world’s resources. We must take a multifaceted approach to the problem of providing every human being with enough resources to support a secure, healthy, fulfilling life.”<sup>121</sup>

The word consumption sports an ironic history. Two hundred years ago if something was “consumed” one could infer that it had been destroyed, as in “consumed by fire or flood.” In the early part of the twentieth century, consumption meant a deadly illness—tuberculosis. In the latter part of the twentieth century, many people aspired to be part of the consumer culture, which meant they had the money and motivation to shop, in some instances, obsessively so.

As we begin our twenty-first century journey, consumption is beginning to revert to its earlier meanings of destruction and illness. For our gluttonous consumption patterns violate Nature's Ultimatum. Alas, the disease of consumption has seduced most of us. Contagious, it spreads worldwide. Whether the prognosis is terminal, as the Easter Islander status symbol affliction was, will depend on our ability to make crucial personal and social changes, like taking steps to live and work in accordance with the System Conditions.

A few years ago the Public Broadcasting System in the United States aired a documentary on this disease they called "Affluenza"—a cross between influenza and the modern affluent lifestyle with its exceedingly high social and ecological price tag. A solution-oriented sequel followed, entitled "Escape from Affluenza."

The documentaries revealed that even though 1) "we consume twice as much as we did in the 1950s, people were just as happy when they had less" and, 2) "Americans comprise only five percent of the world's population, in 1996 we used nearly a third of its resources and produced almost half of its hazardous waste."<sup>122</sup>

Back in the early 70s the Arab oil embargo emerged and with it the environmental movement. Many thoughtful people began to question over-consumption. The hedonists and Reagan took over and ruled the 80s, but by the end of the decade of "trickle down" economics, "national columnist Richard Reeves wrote, 'Nine out of ten people got screwed. The richest 10 percent of the nation got richer and paid fewer taxes. The middle class made less money and paid more taxes. The poor got poorer and there were more of them. The money was trickling up, not down.' At the end of the Decade of Greed, as some have called it, 33 percent of all personal wealth in the nation was in the hands of 1 percent of its households."<sup>123</sup>

At the dawn of the twenty-first century, with the highest temperatures ever recorded and the heat rising in culture wars, a new question keeps popping up: "How much is enough?" Perchance we are realizing over-consumption's major implication: it looks a lot like Easter Island.

**Inappropriate Technology.** Technologies that violate the System Conditions are not all beer and skittles. For our species' survival, we must find ways to phase them out as fast as possible. With the kind of urgency we have mustered at other critical points in history, we must substitute new, innovative, sustainable, and appropriate technologies. The sort of serious intent suggested here is analogous to the technological urgency during World War II. For whether we are apathetic, in denial, or acknowledge it, we face the ultimate urgency: the very real possibility of mass extinction of life.

Bio-technology is one of the newest inappropriate technologies with very real threats to all life and its completely unproven track record of safety. Gene pollution from genetically manipulated organisms is only one of the horrors. The destruction of “agro-diversity” and 10,000 years of human nurtured crop diversity is one of the larger tragedies.<sup>124</sup>

Another horrific assault on all the System Conditions, including System Condition Four, is the violence wrought by the weapons industries. From high tech armaments and torture gadgets to nuclear, chemical, and biological weaponry, the worldwide weapons industry threatens all life on the planet with its high technology of annihilation.

Space technology violates the four System Conditions. You have probably watched the space shuttle re-enter the atmosphere trailing a bright orange streak across the sky, which discharges an inordinate amount of molecular garbage. The fuel used for launching likewise disturbs Nature’s cycles. Were we to divert the billions of dollars now squandered on space exploration to the imperative of creating a sustainable planet, imagine the possibilities. The ensuing knowledge may well lead to sustainable alternatives in space, including solar-powered space exploration.

At present, we have the cart before the horse. Considering all the mining of exotic and scarce metals required for building spacecraft, the toxic substances necessary for their manufacture, the waste, fuel, and disruptions of natural flows and cycles, it is odd so few oppose the space boondoggle. It is even more absurd when we recognize that we have yet to duplicate Nature’s services on our own planet, much less in space.

In our “war against extinction,” attentiveness to technologies that comply with the System Conditions will be essential. Technologies are sustainable when they

- foster right livelihood and purposeful work
- preserve cultural diversity
- nourish and fortify community
- enhance equity and justice
- satisfy human needs
- encourage radical resource productivity in the spirit of doing more with less and with the intent of responsible resource use
- produce only biodegradable wastes (none “alien” to Nature)
- add no systematic accumulations to the ecosphere of substances from the Earth’s crust or synthetic compounds
- strengthen biodiversity

In short, appropriate technologies are those that adhere to rather than violate the System Conditions. A few examples of such technologies include: solar cookers,<sup>125</sup> bio-intensive agriculture,<sup>126</sup> rain water collection systems, bicycles and mass transit systems (preferably made from recycled metal), passive solar for hot water and indoor heating, solar lighting, straw bale construction, permaculture,<sup>127</sup> and solar and wind power.<sup>128</sup>

There is one other example you probably will not find listed elsewhere, one that reveals my completely transparent bias. As a delivery system for fulfilling human needs beyond basic survival, *coaching* can be an appropriate technology in the highest degree. You will learn more about this in Part II.

**Dysfunctional Organizations.** Have you ever known an organization that was not dysfunctional to some degree?

Within the last few years, millions of informed citizens worldwide have come to consider a handful of organizations abnormally dysfunctional. The International Monetary Fund and the World Bank have proven themselves overzealous in “developing” Third World countries and indigenous cultures, and both have made public promises to change.

The Organization for Economic Cooperation and Development (OECD), a Paris-based international policy organization made up of twenty-nine rich countries, spawned—without the knowledge and scrutiny of citizens or elected officials—the Multilateral Agreement on Investment (MAI), an initiative many saw threatening self-government, sovereignty, freedom, and life-support systems. Indeed, some observers familiar with the North American Free Trade Agreement called the MAI “NAFTA on steroids.” The public took offense at the OECD’s attempt to veto democracy and nailed the MAI coffin tightly.

Nevertheless, the World Trade Organization took over where the MAI failed, which explains in part the protests that emerged beginning with the WTO conference in Seattle in 1999. The authors of *5 Days That Shook the World* call the protests “truly an insurgency from below” expressing a “turbulent flood of popular outrage.”<sup>129</sup>

A short story shows how ordinary people can influence imposing organizations like these, even in remote regions. Paraguayan grassroots activists Oscar Rivas and Elías Díaz Peña have campaigned for almost two decades to halt a number of ill-conceived projects harmful to people and the planet in their corner of the globe. In the face of the internationally financed dam and dredging projects on and along the Paraná River—projects that would have devastated villages, the local economy, and ecosystems,—Rivas and Díaz had the spunk to take a stand and submit a claim to the World Bank Inspection Panel. Their claim boldly called for effective environmental and resettlement

plans, resulting in an apology from the World Bank along with revised recommendations that now benefit local Paraguayan communities. Most fittingly, Rivas and Díaz were among the winners of the 11th annual Goldman Environmental awards.<sup>130</sup>

Another bold individual with a palpable impact on organizations is Dee Hock, founder and the CEO Emeritus of Visa International. He asks: “Why are organizations, everywhere, whether political, commercial, or social, increasingly unable to manage their affairs? Why are individuals, everywhere, increasingly in conflict with and alienated from the organizations of which they are part? Why are society and the biosphere increasingly in disarray?”<sup>131</sup>

Hock understands that we are experiencing “an accelerating, global epidemic of institutional failure” in which organizations are “unable to achieve the purpose for which they were created” while at the same time “they devour scarce resources, demean the human spirit, and destroy the environment.” In Hock’s exceptionally convincing book, *Birth of the Chaordic Age*, he gives some blunt examples:

Schools that can’t teach. Universities far from universal. Corporations that can neither cooperate nor compete, only consolidate. Unhealthy health-care systems. Welfare systems in which no one fares well. Farming systems that destroy soil and poison food. Families far from familial. Police that can’t enforce the law. Judicial systems without justice. Governments that can’t govern. Economies that can’t economize.<sup>132</sup>

To address these “opportunities,” he formed a nonprofit organization, The Chaordic Alliance, so named by him from a contraction of *chaos* and *order*. “Chaordic” expresses the state of optimum organization in today’s complex world of accelerating change and disorder.

Hock’s vision foretells the formation of practical, innovative, highly adaptable organizations that blend and thrive on the *chaos* of competition and the *order* of cooperation while addressing critical societal and ecological issues. Distinguished by its complex and nonlinear nature, a typical chaordic organization would be known by its intelligent—as opposed to dysfunctional—behavior. In Part II we will become more familiar with chaordic organizations as we co-create coaching circles for the Coach Five Project.

**Implications.** Because of the extremely unbalanced and unfair structure the globalization imposes on the Earth and her inhabitants, natural capital is disappearing, especially in poor, remote and exploited regions of the globe. Water tables, croplands, fisheries, stable climate and living species shrink.

Much of our present dilemma has its roots in the past when people making policy-decisions failed to look upstream. Yet, we have no excuses. More than a

quarter century ago, Richard J. Barnett and Ronald E. Müller in their prescient work, *Global Reach*, documented the social and ecological effects of concentrated economic power. They addressed the dark side of the fairness requirement observing that greed “is a special characteristic of our modern economic system, which depends on it as a primary incentive of social organization.”<sup>133</sup> Indeed, they even investigated and reported on a couple of our abnormally dysfunctional organizations, the OECD and the World Bank. Noting that the multi-national corporate role extended poverty worldwide “due primarily to the dismal reality that global corporations and poor countries have different, indeed conflicting, interests, priorities, and needs,” they named “worldwide profit maximization” and “primary allegiance to the stockholders” as central corporate priorities.<sup>134</sup> Nothing much has changed in the ensuing two and a half decades except for a deeper and broader consolidation.

Ed Ayers, however, reports a significant trend around small citizens’ groups stopping some of the “most muscular companies” in their tracks. Of Ayers’ seven such instances, perhaps the most heartening is General Motors’ dropping out of the Global Climate Coalition, the lobbying group that campaigns *in favor of* fossil fuels and greenhouse gas emissions. Before we jump for joy, though, Ayres suggests that we watch for “signs of true changes in the corporate culture.” He also reminds us of an often ignored yet stunning fact: “corporations with revenues larger than the GDPs of Colombia or Turkey have shareholder populations constituting even smaller fractions of the public than 1 percent.”<sup>135</sup>

Globalization’s market fundamentalism has a grip on the collective throat of the world yet many of us have acted like passive by-standers instead of the deeply affected stakeholders that we are. Not so with Nobel laureate Dr. Oscar Arias who condemns globalization for much of the current suffering among the poor of the world:

We have... passively placed our fate in globalization’s whimsical hands... globalization refers to many things: the rapid integration of our planet’s societies under a vast and sophisticated communications network; the weakening of the state, owing to the erosion of important elements of national sovereignty; the new financial dynamic that allows large corporations to expand to remote regions of the globe; the daily circulation of \$1.5 trillion dollars by investors who are seeking frantically to maximize profit and minimize risk; and, above all, the growing advantages enjoyed by a privileged and well-educated class, in contrast to the suffering endured by masses of unqualified and miserable poor. *Global inequality is expanding at an insidious rate. If staggering levels of poverty are ignored, future inhabitants of the earth may never*

*know peace and democracy. 'Just human development' will be a contradiction in terms. [my italics]*<sup>136</sup>

At this time of globalization Dr. Arias sees the poverty, disease, ignorance, and injustice unfolding as a war “gruesome as any through the course of human history... the equivalent of a full-scale siege upon the disadvantaged of our planet.” He reminds us of the scale of the tragedy and a useful standard for knowing whether our world has been transformed.

Let us recall for only a moment the horror of Hiroshima: hundreds of thousands of lives, wiped indiscriminately off the face of the earth in one terrible instant. Yet we would need 236 such bombs to equal today's annual infant mortality rate due to malnutrition. When we pray for world peace, do we think of all those killed by hunger or maimed by disease? To obtain peace, it is not enough that global fighting ceases. *True peace begins the moment that an acceptable quality of life is attained by the world's underprivileged. [my italics]*<sup>137</sup>

Arjun Makhijani, President of the Institute for Energy and Environmental Research near Washington, D.C., has likened the structure of globalization to “that of apartheid in South Africa—a kind of global apartheid,” in which countries of the “West” perform “on a global scale” a role “similar to that of Whites in [the former] South Africa” while the humanity of the poor—their hungers, desires, tears and joys—goes unrecognized by the economic system. Obviously, fairness is missing and the upshot is violence:

Since violence in its various aspects—economic, military, environmental, political and cultural—has been so prevalent and recurrent, my working hypothesis is that the essence of the present-day global system can be captured in the phrase ‘*war system*’... [that functions] for the purpose of domination, exploitation and control.... violence and the threat of violence are constants of daily life and are part and parcel of political repression and economic exploitation.... Social and economic divisions create many conflicts among the oppressed themselves. Moreover, oppression and exploitation tend to be reproduced at smaller and smaller economic units, right into the heart of the family.... from threats and violence against women in the home, to guns in the streets, to threats and actual use of weapons of mass destruction.<sup>138</sup>

Richard K. Moore, publisher of the Internet's Cyberspace Journal, sees globalization as a new form of fascism on a worldwide scale. It amounts to four radical world system changes:

- the destabilization of and removal of sovereignty from Western nation states

- the establishment of an essentially fascist world government under the direct control of the capitalist elite
- the greatly accelerated exploitation and suppression of the third-world, and
- the gradual downgrading of Western living conditions toward third-world standards<sup>139</sup>

Moore's analysis ties the September 11<sup>th</sup> events directly to globali-zation. He asks what President Bush's "War on Terrorism" really is. A blank check, he says, to do "whatever he wants, wherever he wants, using whatever means he chooses" and Bush intends to draw on this "blank check for a long time to come." Moore shows that the U.S. historically has handled wartime authority by pursuing "whatever objectives are most important to it—regardless of the incident that provided the blank check." In the present moment, Moore says what is important to the Bush administration is "the preservation of global elite rule, the acceleration of globalization, and the suppression of the anti-globalization movement" (that is, the global justice movement).

Globalization depends on greed as its "primary incentive of social organization," Barnett and Müller told us twenty-five years ago. It is high time we hear and act on these messages. We must re-invent globalization. For if we do not, our species will become extinct far sooner than later and we will not succeed in changing the foundational dynamics of terrorism in the near term.

Perhaps, then, it is prudent to propose a fifth system condition: "Nature—and society—cannot withstand a concentration of power and wealth at the expense of the common good."

**Human Needs.** Initiatives aiming to reverse these threats to the Earth and her residents must engage minds and hearts worldwide. For life to continue, we must throw our collective human energies into realizing the vision of a sustainable world. We now know through real life experience and real world tragedy (as well as through countless studies and reports) that "if basic human needs are not met, sustainability goals, ecosystems, and ecosystem services suffer."<sup>140</sup> So do billions of people and the West is not exempt.

System Condition Four tells us to make basic human needs a priority over luxury. Resources are to be used *where they are most needed*. Society, by meeting System Condition *Three*, will take great care in using resources so as not to lose the productive capacity for supplying food, raw materials, and fuel. As we wean ourselves from fossil and uranium fuels and from all manner of synthetic compounds (System Conditions *One* and *Two*), our dependency on the long-term health of our ecosystems (System Condition *Three*) will become more

apparent. System Conditions One, Two, and Three make up the *external* elements of the sustainable society—what Nature cannot withstand.

System Condition Four urges us to look at the *internal* elements within society, especially human needs. It allows us to see that people cannot realistically address the first three conditions until their needs are met.

For our purposes the schema developed by economist Manfred Max-Neef is useful and meaningful. A Chilean professor who has gained an international reputation for his work in “economics as if people mattered,” Max-Neef early on discerned that the cookie cutter models of the World Bank and the International Monetary Fund were not helping the masses. On the contrary, their projects actually caused widespread suffering and wider income disparities.

Max-Neef set out to reorient development in terms of stimulating local self-reliance, personal responsibility, and satisfying fundamental human needs. Operating under the ethics of “well-being,” he has sought to counter the linear logic of mainstream economics.

Unlike Abraham Maslow’s *hierarchy* of needs, Max-Neef perceives human needs as a *system*—all human needs are interrelated and interactive. Like the self-organizing parts of any system, needs coexist in a natural synchronicity, link and complement each other, and make trade-offs. Moreover, human needs are “*the same in all cultures and in all historical periods. What changes, both over time and through cultures, is the way or the means by which the needs are satisfied.*” [my italics]<sup>141</sup>

What many of us would call “needs,” Max-Neef calls “satisfiers.” Thus, food and shelter are not needs but rather they are “satisfiers” of the fundamental need for Subsistence. In a similar manner, education, study, meditation, awareness, and comprehension are satisfiers of the need for Understanding. Curative or preventive systems and healthcare schemes (as Max-Neef calls them), social security, and secure shelter are satisfiers in general for the need for Protection. Some satisfiers, such as shelter, satisfy more than one need simultaneously.

Rather than seeing “poverty” in the “strictly economic” sense (below a certain income threshold), Max-Neef suggests that we speak of *poverties in the plural*: inadequately satisfied needs reveal human poverties. Thus, there can be many kinds of poverties:

poverty of subsistence (due to insufficient income, food, shelter, etc.), of protection (due to bad health systems, violence, arms race, etc.), of affection (due to authoritarianism, oppression, exploitative relations with the natural environment, etc.), of understanding (due to poor quality of education), of participation (due to marginalization of and discrimination against women,

children and minorities), of identity (due to imposition of alien values upon local and regional cultures, forced migration, political exile, etc.).<sup>142</sup>

Yet, “each poverty generates pathologies,” maintains Max-Neef. Examples include fear, violence, unemployment, external debt, and hyperinflation. Max-Neef’s framework allows us to examine the “poverties and pathologies” underlying our local and global dilemmas and to wonder about the unsatisfied needs of others—the industrialists, for example. Where do they feel deprived? Are “pseudo-satisfiers” canceling out the possibilities of satisfying their needs?

Max-Neef suggests other types of satisfiers, such as “inhibiting satisfiers,” “singular satisfiers,” and most strikingly, the satisfiers he calls “violators and destructors,” all of which we shall visit in detail in Part II. What matters here is to recognize that in today’s globalized world, with its inequitable distribution of resources and wealth, “satisfiers” favoring linear thinking predominate.

Linear human development encourages the stockpiling of material things to satisfy both our material and nonmaterial needs. This leads to, Max-Neef tells us, “the poor remaining poor” (whether they are “poor” in affection, understanding, participation, identity, or in the economic sense) because their reliance on externally generated satisfiers increases. In contrast, Max-Neef’s nonlinear strategy, as we shall see later, favors self-reliance and “synergistic satisfiers,” truly sparking the non-linear or holistic growth of human potential.<sup>143</sup>

## Farewell Footprint

In concluding this chapter, it is useful to return briefly to the modest Westside Subdivision where we began our discussion on the System Conditions. Plainly, System Condition Four has also been violated in that low-income ethnically diverse community. Apparently, neither the subdivision developer nor the oil company management concerned themselves with or cared about the impact of their work on the people who would eventually live there. While there have been worse examples—Bhopal or Chernobyl, for example—suffering is relative. The Westside instance is a sad but typical commentary on the character of nonsustainability around the world.

This lack of caring occurs most often when, in praise of profit, the powerful abrogate basic human rights and ignore human needs. Too often, such disregard affects people of color and diverse populations. In this particular situation and countless others, the violation of the System Conditions not only damaged the natural world, but the assault also amounted to *environmental racism*—a scourge System Condition Four may help eliminate from the face of the Earth.

In remembrance of what occurred on Easter Island, we can examine our own status symbols. How concerned am I about my position in society? My social status? My possessions? Indeed, can I identify my status symbols? Where do my own consumption patterns and expressions of power come from? How are they violating the System Conditions? What will it take for me to shift to a more sustainable way of living and working?

Looking at how efficiently your community and you are using and sharing natural resources, ask yourself, How much *is* enough? How can I be more creative in imitating Nature in my use of resources? In the context of a whole systems approach, how can I use radical resource productivity in my life and work? How can I mimic Nature and pattern natural cycles?

In connection with such questions, it may be helpful to recall these words from Nobel Peace Prize recipient, Dr. Oscar Arias:

Each one of us must shoulder some responsibility for the deprived conditions found within a greater part of the world's communities. We may not be the direct instigators of these situations, but—as long as we permit social inequality to exist—*we are accomplices in the destruction*. No longer can these issues afford to be discussed as mere academic topics in universities or as debates in the privacy of one's home. This is a call to action.<sup>144</sup>

When we revere life enough to see it continue, we will embrace the System Conditions and take whatever actions are required to transition to a just and sustainable society. We now turn to the real world *application* of The Natural Step System Conditions and a step-by-step program for such a transition.

## CHAPTER 6

# Compass Strategy

## How You Can Apply the System Conditions

*In our orienteering metaphor, we think of science as analogous to the compass that points to true north. True north is non-negotiable on the compass wheel.*

*The science of sustainability helps point us towards the non-negotiable conditions that we live by on this planet. With a map and navigation skills, a compass will help us walk the path to a sustainable future.*

*In our metaphor, Learning is the navigation skill and Systems thinking is the map. These three approaches—science, systems and learning—work interdependently together to provide content, context and commitment to help us create a sustainable society where all life can flourish for 1000 generations.*

—Sara Schley and Joe Laur

### Foothold

So far on our journey toward a healthy and flourishing future, we have visited the funnel, complexity, The Natural Step principles, the sun and the cyclical processes, and the non-negotiable System Conditions for life to thrive. The funnel shows us society's patterns of resource and energy misuse, waste production, and population overload—the “tight squeeze” Nature's Ultimatum has on humanity, the environment, and the economy.

In Chapter 2, we saw how the character of society has changed from low to high complexity in a few brief decades and how those changes affect our creation of a shared vision for sustainability. We now understand that specialists can muddy the water with analysis paralysis, as the cause-effect chains seem to disappear downstream in a whirlpool of details and events.

The “Think Tree” approach encourages us to make decisions upstream based on principles in the trunk of the tree rather than getting lost in the details of all the leaves. Systems thinking and the science that underpins The Natural Step principles are prerequisites for co-creating a truly sustainable society.

“Sun-coached Cycles” remind us that, in a sustainable society, the sun pays all the bills, keeps the cycles busy processing all matter (waste = food), and makes possible the continuing diversity of Nature, thereby sustaining human activity. Re-stabilizing Nature’s systems and cycles and keeping them in balance may help us outwit reverse evolution and mass extinction.

The four non-negotiable System Conditions necessary for co-creating a sustainable future are both elegant and non-overlapping yet still simple enough to be shared across the cultures of community, science, government, and business. They tell us that Nature—and by implication, humanity—cannot withstand the systematic concentration of

- matter from the Earth’s crust,
- persistent unnatural substances produced by society,
- eco-system manipulation harmful to natural productivity and biodiversity, and
- wealth and power at the expense of resource efficiencies, fairness, and satisfying human needs worldwide.

All of these stopovers were necessary to prepare us for charting the next leg of the journey, the compass strategy, which entails putting all of this together in a systematic way. This chapter focuses on applying the Four System Conditions by employing what we have already learned plus several new tools.

Besides reviewing the funnel metaphor, we will look at the Life Requirements Checklist—one way to evaluate “our system” at the local level using the System Conditions. We will also explore the distinction between backcasting and forecasting and become familiar with using the backcasting approach for creating the future. Then we’ll develop a step-by-step road map to the future. Finally, we graduate to Part II, where we will prepare ourselves as coaches to go forth and spread the vision.

## Finer Focus

This sojourn involves *applying* The Natural Step Framework as a “compass” to guide us toward our ultimate destination: a just, joyful, and sustainable future. (See Benefits of the Compass). Before we reach the pinnacle where we can actually see the vision of a sustainable world, we will need to become familiar with some new tools so we can more skillfully share the message with others.

The Natural Step Compass points us toward a sustainable future. It can guide human activity directly through the narrow neck of the funnel without

“hitting the wall.” Indeed, it is in our own self-interest to take the path to a sustainable future and influence others to join us on the journey.

### **BENEFITS OF THE COMPASS**

*as an overall frame of reference*

- |                                 |  |
|---------------------------------|--|
| • Valid at any scale            | (The funnel)                             |
| • Links principles to details   | (Trunk, branches and leaves)             |
| • Enables control over outcomes | (Backcasting and Step by Step Itinerary) |
| • Uses the language of planning | (Principles, strategies, goals)          |
| • Makes sense of other tools    | (Auditing, Life Cycle Assessment)        |

Adapted from Karl-Henrik Robèrt, John Holmberg and The Natural Step, ©1995

As we become more comfortable maneuvering with our compass, our confidence about sharing The Natural Step wisdom will grow. While all of the “parts” we have visited so far help us to understand the “whole” journey, several specific elements enhance our compass:

- The Funnel
- The Four System Conditions
- Backcasting
- Step by Step Itinerary Headed for Sustainability

After focusing on The Natural Step tools that pertain to the compass, you may want to reexamine relevant parts of previous chapters. You will gain a new perspective and be eager to share this message with people you know.

### **The Funnel Revisited**

The funnel, of course, stands as a metaphor for all the demands and pressures that are threatening our own self-interest and the self-interests of everyone else, whether or not they realize it. These include the declines in income, resources, biodiversity, and ecosystem services. At the same time, there is an enormous increase in society’s demand for resources as population, waste, and pollution continue to rise.

When you are sharing The Natural Step Framework with others, remind them that the funnel shows in graphic form the Big Problem humanity is

facing—what we have called the Tight Squeeze. You may surprise friends and family by letting them know the exceedingly short span of time that our species has taken to create our present situation:

Suppose Earth's history were charted on a single year's calendar, with midnight January 1 representing the origin of the Earth and midnight December 31 the present. Then each day of Earth's year would represent a million years of actual history. On that scale, the first form of life, a simple bacterium, would arise sometime in February. Complex life forms come much later: the first fishes appear about November 20. The dinosaurs appear around December 10 and disappear on Christmas Day. The first of our ancestors recognizable as human would not show up until the afternoon of December 31. *Homo sapiens*—our species—would emerge about 11:45 PM. *All that has happened in recorded history would occur in the final minute of the year.*<sup>145</sup>

Never before has the funnel metaphor been so necessary. The whole interval human beings have been present on our planet—with the exception of about the last 100 years or so, humans have been part of Nature's cycles. The waste from our bodies and hands, as Dr. Karl-Henrik Rørbø puts it, was reintegrated back into new production driven by plant cells and the sun.

Unfortunately, the industrial revolution has reversed this situation. By virtue of our access to concentrated energy—especially fossil fuels and uranium, we now have the dubious ability to process more matter than ever before. “Dispersed junk” (visible waste and molecular garbage) no longer has time to re-enter production or restructure back into resources.

Therefore, a vast increase of dispersed waste has concentrated in the atmosphere, in the soil, and in the seas at the same time that coral reefs, forests, and species are disappearing. A form of reverse evolution has begun to take place. All of this creates the tight squeeze of the resource funnel.

As the pressures increase, the funnel walls tighten their squeeze and increase our odds of “hitting the wall.” Our aim, of course, is to open the walls of the funnel so we can get to the other side. There the pressures and demands are much reduced and the circumstances we can then create are sustainable. Figure 1-1 in Chapter 1 indicates these demands and pressures.

You can easily draw the resource funnel on a paper napkin at a coffee shop during a visit with an interested friend or colleague. This gives you an opportunity to introduce The Natural Step Framework to people and coach them on the benefits of the Coach Five Project (Chapter 12).

In explaining the funnel, you can also talk about the basic science and preconditions of our lives: our cells cannot tolerate cadmium or other toxic substances. Nor can humanity survive the continuous decline of living systems.

### Your Spunk through the Lens of the System Conditions

How well does your own life open the walls of the funnel? Tighten the walls? You can use the *Life Requirements Checklist* based on the System Conditions to determine where you or your family stand and what your next “natural step” is going to be. You can generate similar checklists for focusing on your own community. If you are not able to check off many of the items the first time through, do not worry. Your unchecked items can be added to your *Step-by-Step Itinerary* as mini-goals to work toward.

The items are not definitive. Tailor the list to suit the situation, while honoring the System Conditions. When you are working with others, remember the consensus concept. Where do you and your family (co-workers, neighbors, etc.) agree, consistent with the System Conditions?

Note well that the System Conditions are overall conditions for sustainability, all necessary, and functionally distinct.. They cover all ecological issues as well as the human needs question concerning global survival. They describe problems at the source—within society.

Recall the distinction we made earlier between upstream and downstream. Our tight squeeze originated upstream. Had our parents’ generation carried out systems thinking upstream and planned ahead using the principles that govern life on our planet, we would not find ourselves in this present downstream dilemma. Because they knew no better, they focused downstream, which is a lot like putting a Band-aid on a patient with a systemic illness.

Since we now know about the principles that define our total system of Nature and Society, we realize that downstream thinking is not productive. If we want life to continue, burning the System Conditions into our brains and focusing upstream is now inescapable. The Natural Step training materials indicate that our rationale for defining the system upstream embraces the following important points:

- The whole system is covered
- Damage has already occurred when it can be measured
- Problems are more complex, harder to measure downstream
- Problems beget problems
- It is cheaper in the long run to avoid problems than to “solve” them<sup>146</sup>

Therefore, it is upstream where we need to use systems thinking in a way that expresses our mastery of the overall principles of the system. It is upstream where complexity is reduced and problems can be prevented at the source. Finally it is upstream where systems thinking provides the means for backcasting, which enables productive, equitable, and wise planning for our common future.

## LIFE REQUIREMENTS CHECKLIST

Based on the Four System Conditions of The Natural Step

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### Decreasing my dependence on mined metals, minerals, and fossil fuels. (SC1):

- I use mercury-free light bulbs, cadmium-free batteries and lead-free paints.
- I use iron cookware rather than pots and pans made from hard-to-recycle alloys.
- I walk, car-pool, take public transportation or ride a bicycle to work at least 2 days a week.
- My lifestyle supports limiting my errands and unnecessary driving / flying.
- My present car gets 40 miles per gallon or better.
- My next car will be a hybrid-electric car.
- I take used motor oil, solvents, and toxic metal or mineral substances to authorized hazardous waste sites.
- I minimize purchases of electric kitchen, yard, and workshop gadgets when manual devices can be substituted.
- I support / am shifting to solar (or wind) generated electricity and I am mindful about efficient use of electricity based on nuclear, coal or petroleum (installing a passive solar hot water heater is a good first step).
- I patronize garage sales and thrift shops for jewelry and other products made of matter from the earth's crust.
- I recycle, re-use, or repair tools, appliances, or other items made from metals and minerals.

\_\_\_ SUBTOTAL (11 possible)

### Decreasing my dependence on persistent unnatural substances (SC2):

- I read labels on packaging, and avoid buying items (i.e., food, cleaning supplies, etc.) that contain chlorine and other harmful substances.
- My drinking water and paper products are not chlorine-treated.
- Eco-toxic substances do not leak from my home or work and I keep them from accumulating in Nature.
- My living space is free of chemical vapors (off-gassing from carpets, vinyl and plastic-based materials and finishes), chipboard and plywood containing formaldehyde, synthetic building materials, plastic vapor barriers, concrete floors (containing synthetic filler), urea-formaldehyde foam insulation, and synthetics-based plastic paints and adhesives.
- I avoid using products and packaging that contain toxic substances: cleaning products, furniture polish, chlorine-based bleach, air fresheners, paints, and paint removers, motor oil with additives, solvents, antifreeze, and synthetic fuels.

- I recycle or take harmful substances to the hazardous collection center.
  - I usually “Heloise” my dishes (soak them in hot water with a small amount of bio-degradable detergent) and then rinse them off to air dry in a rack.
  - If I use an automatic dishwasher, I run a *completely full load* on the energy saver cycle and use a bio-degradable dishwashing product plus ¼ cup of vinegar in the rinse cycle. After last rinse cycle, I *open it to air dry*.
  - I am fully conscious of what I eat and drink (where it came from, how far it traveled and how much energy/fuel was spent in production and transport; was it produced with exploited labor, extravagant irrigation, toxic pesticides, or chemical fertilizers; was it grown in a polluted region).
  - I buy locally grown or grow my own organic produce whenever possible.
  - I am fully aware of causes of groundwater pollution and support its prevention—pesticides, chemical fertilizers, and run-off from factory farms; industrial spills, leaks and waste disposal; oil and gas production and processing; gasoline storage tank leaks and spills; mine tailings and toxic byproducts; nuclear waste synthetic spin-offs; hazardous and solid waste dumps; acid rain from polluted air; and household sewage (which contains, believe it or not, pharmaceuticals, like synthetic birth control compounds and chemical additives from processed food, shampoo, and endless other human-made products).
  - I prefer herbal remedies to pharmaceuticals made from persistent synthetic materials and non-invasive treatments to surgery with its numerous unsustainable by-products and the pollution from hazardous medical incineration.
  - I use cosmetics and toiletries that are free of persistent synthetic substances.
- \_\_\_ SUBTOTAL (13 possible)

**Decreasing my dependence on activities which encroach on productive parts of nature (SC3):**

- I avoid taking long road trips.
- When I shop, I take my own bags with me. I buy staples in bulk and avoid excessive and non-recyclable packaging.
- I avoid leaking plumbing fixtures and long showers. I use low volume shower heads and toilets and do not flush every time or leave the water running when not in use.
- I support local organic farmers who take good care of the land and grow common open-pollinated plants (non-hybrid, non-treated, non-genetically-engineered seeds or genetically manipulated species)
- I grow some of my own herbs and salad makings in my own garden, or in containers on my patio or window sill, or in a nearby community garden.
- I have planted and organically nurtured at least one fruit or nut tree in my lifetime.
- I generally eat off the lower end of the food chain (i.e., mostly vegetarian) and if

I eat animal products, I raise my own or buy from a local source.

- I do not eat wild fish from depleted populations or genetically modified farm fish.
- I eat many raw foods (nuts, fruits, vegetables, sprouts, and seeds).
- I “reduce, reuse, repair and recycle” as often as possible.
- I compost yard and food wastes.
- I landscape with edible and native plants with low water requirements and avoid impervious materials (like asphalt or concrete driveways or patios). Already existing impermeable surfaces collect and redirect water to gardens and orchards.
- I use kenaf, hemp, or other non-tree stationery.

\_\_\_ SUBTOTAL (13 possible)

**Decreasing my dependence on using large amounts of resources needed more by others, especially those in exploited countries (SC4):**

- I choose to live simply that others may simply live. I focus on my real needs.
- Charity is not enough. I am taking active responsibility for deprivations in our world and express my concerns and recommendations to friends, family, editors, and my elected representatives.
- I am healthy and happy without the drain of the status symbol syndrome.
- I am a responsible consumer. I often shop at thrift stores, recycle my printer cartridges, use the library, and share tools or rides with neighbors.
- I do far more with less and with the intent of responsible resource use.
- Biomimicry is beautiful. I learn something new from Nature virtually every day.
- In my work and lifestyle I honor present and future human needs worldwide so that resources can be distributed where they are most needed.
- I vote with my spending habits. I definitely do not buy or invest in genetically manipulated seeds or products, weapons, space exploration, or products of globalization.
- Socially responsible investments are important to me. I support sustainable products even before they show up on the market.
- I am doing my part to meet human needs worldwide. I volunteer time to teach or contribute in sustainable ways (literacy programs, community gardens, restoration projects in diverse neighborhoods, social justice actions or systems perspective legislation, a Coach 5 group, etc.)
- I patronize local sustainable industry rather than multi-national corporations with a history of social injustice and ecological indifference.

\_\_\_ SUBTOTAL (11 possible)

\_\_\_ TOTAL (48 possible)

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### Backcasting vs. Forecasting

Not too many years ago, forecasting seemed like the ideal tool for charting the future. The first step in forecasting necessitated the collection of data, mainly information about the present for discerning and extending trends into the future. Futurists made extrapolations—estimates that projected known information out a certain number of years. In certain cases, such estimates have proved bewilderingly faulty, such as the failure to foresee the ill-famed OPEC oil embargo of 1973 or the events of September 11, 2002.

One of the reasons for such an outcome is that surprise events cannot be found in known data. Since surprise events have been a major part of human history, it only stands to reason that they will also be part of the future. Former board member of The Natural Step/U.S Peter Senge, and author of *The Fifth Discipline*, *The Dance of Change* and other highly acclaimed books, sees little value in extrapolation and calls it a “fool’s occupation in a nonlinear world, where even ‘perfect knowledge’ leads to highly imperfect predictions.” When you extrapolate your future from an unsustainable present, guess what you get.

To be evenhanded, forecasting may be useful in determining probable future levels of accessible mineral reserves, for example, based on current conditions and probable trends. If we want to see the future more as an extension of the present—that is, business-as-usual, government-as-usual, violence-as-usual—we will choose the forecasting technique. Rather than proactively co-creating the future we really want, we often wait for forecasts to become self-fulfilling prophecies of current trends with all the present’s inherent baggage, unexamined assumptions, and unsustainable myths.

In short, forecasting reflects the existing worldview that brought us to our current tight squeeze reality. You can see, therefore, how forecasting can become a distinct disadvantage in creating a healthy and flourishing future.

Enter scenarios and backcasting, which, though separate techniques, are both carried out from visions, not trend extrapolation.<sup>147</sup> The solution to the surprise event dilemma is to create a nonlinear method of imagining the future. In Chapter 1 we saw how South Africans used scenarios to develop a desirable future. Backcasting puts the scenario method on steroids, in my view, by “backing from” the desired future fully mindful of the Four System Conditions of The Natural Step. (The scenario technique does not include first order principles.)

First, you imagine a genuinely sustainable future far removed from the “baggage” of today’s world. Next you define the principles for where you want to be in the future. Moving step-wise back in time from that vision to the present, you then identify the choices and actions that have to be taken at

strategic points along the way in order to realize the vision. Based on these steps, you design a program for change that is compatible with the vision and the System Conditions. Somewhat like a devoted fisherman backcasting for that prized fin-twinkling fish, you backcast for your luminous future.

### **Back(casting) to the Future**

Slightly more complicated than the fishing enthusiast's type of backcasting, The Natural Step's version of backcasting can nevertheless be equally as engaging. In fact, John Holmberg, a professor in Sweden and a major contributor to the development of the System Conditions of The Natural Step, suggests backcasting involves liberating "beliefs about today's situation" and endeavoring "to understand what requirements and possibilities sustainability will involve in the future."<sup>148</sup>

Closely related to scenario development, the backcasting method addresses the question of how to create desirable futures, rather than passively waiting on trend extrapolation or other linear techniques to see what futures will occur. In backcasting, one "leaps" forward in the imagination to envision a future endpoint (a scenario) compatible with the Four System Conditions. If this is done in a group, allow time for dialogue so that participants can come to consensus on what that future looks like, feels like, smells like, and so forth.

Next, work backward to the present to find out what actions will have to take place to assure such a future. During the process decision points emerge that reveal critical action steps essential in the short and medium term for realizing the longer-term endpoint. You record those steps on the Step-by-Step Itinerary. (See next section). Early actions often include harvesting the "low-hanging fruit." This means you first build momentum by taking advantage of the obvious, less demanding items.

The analogy of relocating to a new city is instructive here. For a smooth and relatively stress-free move, one does not load everything and the kitchen sink into the moving van and head for the new city. Prudence calls for first planning the steps you must take to accomplish a glitch-free move. Most likely there will be at least one reconnaissance trip to explore the neighborhoods for an ideal home, schools, and other quality of life factors. These serve as "System Conditions."

Once a dwelling has been secured, a moving date can be set and other tasks can then be scheduled. The more carefully one plans backwards from the new home to the present, the smoother the move is likely to be.

In the meantime, you are also handling address changes, closing old accounts, and engaging new services. You know the drill, no doubt. The point is

you are taking actions through a simple process of backcasting. The image of your new home is a sufficiently compelling vision that you are energized, pulled to take whatever actions are required to get moved from point A to point B.

Relocation aside, one of the primary benefits of the backcasting method in life and work is that one can better anticipate the impacts of an array of outcomes, making it possible in most cases to choose the most desirable outcome and the steps leading there. It also breaks a long-term project into short-term, wisely progressive and do-able steps.

When is it appropriate to apply backcasting? The Natural Step curriculum recommends we use it when:

- the problem is complex
- there is a need for major change
- dominant trends are evident
- the problem is dominated by “externalities”
- there is room to maneuver<sup>149</sup>

By infusing the dialogue with the System Conditions, certain constraints will challenge the backcasters to devise scenarios that will not violate Nature’s Ultimatum. Whatever scenario or vision emerges can then be contrasted with present reality resulting most likely in a clarion wake-up call for not just an attitude adjustment but what Holmberg calls “societal adjustments.” With the exception of inserting the System Conditions into the process, there are no particular rules to follow here. You and your group are the experts on your own community’s future so you get to be as creative as you wish.

### **Step-By-Step Itinerary**

The Natural Step curriculum urges a step-by-step approach for implementing the framework whether that implementation takes place in a huge company or in your own family. After all, how unreasonable would it be to expect anyone or any organization to reach their long-term goals immediately?

I encourage you to move “systematically” by investing in ways that will reap benefits in the short-term, while holding the vision and the longer-term perspective. You can use the Natural Step Framework to map out a series of steps that will eventually lead to full sustainability. You may want to begin with the “low hanging fruit,” those steps that are easiest to take and will achieve results that help move you closer to your goals. As indicated earlier, The Natural Step Framework is not prescriptive, and does not judge. Instead, it serves as a guide.

When I use the backcasting technique and the step-by-step strategy with my business clients, I often ask them to work from a Master Matrix of Actions. Figure 6-1 shows one way a business owner might design the matrix. The years can extend out to a rather distant horizon, depending on the vision and the potential constraints. One way I help re-frame thinking is to ask them, “What business are you in, really?” A consulting and training firm may be in the *people developing* business, not the consulting or training business.<sup>150</sup>

Ideally, at the outset coachees have two main pieces in place. First, they will benefit most if they are well on their way to having most of their needs satisfied. Secondly, it is an enormous advantage for them to be reasonably clear about their values. When your coachee is “ready” in this way (needs legitimately met and values honored), it is easier to evoke a more compelling and authentic vision to guide their future. What is really important to an individual (what they value) cannot emerge clearly in their consciousness until their needs are satisfied. This happens repeatedly with new clients. Meeting human needs, as we saw in the last chapter and will encounter again in Part II, is the foundation for releasing human potential worldwide.

Actions	Done	Year 1	Year 2	Year 3 [etc.]	Four System Conditions Met
					→ <i>Time line</i>
Set Purchase Criteria		x			
Set Vehicle standards				x	
Upgrade Utilities				x	
Garden Supplies		x			
Cleaning Supplies		x			
Reduce Waste				x	
TNS auditing		x			
[etc]					

**Figure 6-1. Master Matrix of Actions**

*Adapted from The Natural Step*

### Staircase Model

When I work with my clients using the compass tools, I often employ the staircase model when we launch into backcasting. The staircase model merges the backcasting technique and the step-by-step strategy.

Let’s pretend that you are my coachee. Your needs are met and your values honored, so you are ready to play with the compass. My initial instructions

in using the staircase model with you would go something like this: “I want you to imagine a staircase to the future. It can be located in whatever setting you choose (imaginary or real): a favorite building, the sky, or a favorite natural site.”

After you have settled on an ideal setting, I draw your attention to the top of the staircase. Then I indicate that “at the top of this staircase is a landing, and that is the platform where you mentally place the vision with which you feel the most affinity.”

Notice that I depersonalized the vision. A vision is not about you or your ego. It’s about something far larger than self. Unlike your needs and values, vision is not personal. Thus, technically speaking, it is not “your vision” but rather “the vision to which you most connect.”

There are already many visions “out there” making it relatively easy to connect with one that resonates with your values and meets all four System Conditions. You will recognize a compelling vision when you perceive that it radiates joy. It will then “pull” you forward toward fulfillment and excellence.<sup>151</sup> Indeed, it may be so compelling that you jump out of bed each day glowing with enthusiasm to work on making it happen.

Next, I may ask you: “As you focus your attention on the landing at the top of the staircase, what vision most attracts you?” I’ll give you plenty of time to consider this. To expand the possibilities, I may also prompt you with a notion I learned from the Non-profit Support Center in San Francisco: You or your organization “will never be greater than the vision that guides you.” Or, something like the following: “No Olympic athlete ever got to the Olympics by mistake; a compelling vision of his or her stellar performance inevitably guides all the sweat and tears for many years.”<sup>152</sup>

Envisioning the future, especially for those who have had little experience in visioning exercises, is not necessarily a quick affair. Patience is an essential attribute during this stage. It is okay if the vision does not magically appear at once. I may suggest: “As you continue to align your life with your values, the vision will naturally emerge. As you grow into the vision, the vision itself may expand. That, too, is fully appropriate.”

Incidentally, certain people simply cannot imagine the world through the “mind’s eye.” They may, instead, experience the world (around time and space) through their senses of hearing, touch, smell or taste. A small number of individuals are capable of extra-sensory visioning. Others may rely on their pleasure-pain sensations to such an extent that they have never cultivated imagining or visioning. Finally, a few people have a traumatic past that limits their ability to consider the future at all. In this case, I make a referral for professional help.

Once you have attracted a vision that, at a minimum, lines up reasonably well with your values and the System Conditions, together we can begin the step-by-step strategy. Each of the steps from the top to the bottom represents actions required for realizing the vision. At this point, I might ask you something like this: “Just before reaching the top of the staircase and realizing the vision, what is the final action step?” After you answer, I next ask “What would be the step right *before* that? And right before that?” In that manner, you would work backwards from the vision until you discovered most of the steps. Later on, some steps will occur through serendipity.

In coaching, a useful maxim concludes: “the client or coachee has the answers.” Remarkably similar to The Natural Step’s philosophy about not being prescriptive, this slogan respects people and expects them to be the experts about their own lives and work. So, although it is possible to “walk together” down the entire staircase, it is not necessary. People usually enjoy pondering the steps in a private reflective mode anyway, writing down the actions, and finally sending me a copy of the Step-by-Step Itinerary they create. I invite you to stop reading here and take some time to see how well this process works for you. You may also want to try it again at the end of the chapter before proceeding to Part II.

Note well that *each step in the staircase model is a platform for the next*. In fact, if you can give each step springboard action, that’s even better. “Springiness” is a great advantage in a fast changing world. For example, energize the wording of each step. Rather than describing each step with a single noun, consider adding a vivid action verb. Finally, the most important part: take action! Move forward. Realize the vision twice as fast as you first expected.

While these approaches are usually employed in long-range strategy, at the request of *my* coach, and in the spirit of an experiment, I applied backcasting as a shorter-term tactic for writing this chapter. I then combined that with the Step-by-Step Itinerary program. Here’s how it played out. On May 10 I listed the major pieces of the backcasting strategy for my purposes:

1. Determine destination or future situation, then place that (“a finely written Chapter 6”) at the top of the staircase. Spend some time reflecting on what it will contain, explore it to see how it operates. Frame the future situation with any principles, constraints, etc.
2. In terms of *current* activities, competencies, goals, and constraints, reflect on what is going well, what needs to change. Make relevant adjustments if possible. Otherwise place needed adjustment on an appropriate step of the staircase.

3. Envision the endpoint, possibility, or scenario that works within #1 above. Hold the vision.
4. Given the present situation (#2 above), determine the resources and steps to bring about the end state (#3) and identify strategies to link #2 with #3. Working backwards from the desired future to the present, place a task on each step starting just below the destination. The steps are flexible. If you forget a step or one logically needs to go before (or after) another step, make the change on your staircase model.

My staircase looked like this:

*Destination Landing:*  
 A Finely Written Ch 6  
 Enjoy final revision  
 Add new insights  
 Review/edit  
 Write Chapter  
 Work on a cluster, then another  
 Play at more mind mapping  
 Review and organize materials  
 Absorb research and compile notes  
 Interview people  
 Sketch vignettes  
 Craft foothold  
 Compose outline and delight in mindmapping  
 Joy in initial Research and Reading  
 Determine Destination, etc. (see #s 1-4 above)

When I sent this message to my coach, I had not done an outline or mind map on paper (both were in my head). I had written almost two pages of the Foothold. I had previously done a large amount of research, reading, and note taking. Plus, I had my own experience on which to rely from using these tools in my coaching practice and in community forums where I had presented overviews of The Natural Step Framework.

Between May 10<sup>th</sup> and May 20<sup>th</sup>, I had a lot on my plate (as usual). Nevertheless, during the early mornings, when I was fresh-headed, I wrote the first draft of this chapter. Revisions came later. Compared to the amount of time I spent on other chapters (usually two to three months each), I am impressed with the staircase model and backcasting strategy for attaining shorter-term goals. The thinking process itself focuses you and puts you in the frame of

mind to say “no” to lots of temptations that might otherwise sidetrack you from your goals and dreams. Functioning like a self-coaching tool, the process keeps you on the path and encourages forward movement and that quintessential quality, action.

## Farewell Footprint

One of the founding fathers of the United States, Alexander Hamilton, once opined: “If the end be clearly comprehended within any of the specified powers, and if the measure have an obvious relation to that end, and is not forbidden by any particular provision of the Constitution, it may safely be deemed to come within the compass of national authority.” Hamilton, in this instance, was offering his erudite opinion on the constitutionality of the bank.

His remarks echo the point of our compass as a safeguard relative to sustainability: If we clearly comprehend our endpoint within the context of a sustainable future, and if the measures we take to realize that vision have an obvious relationship to that end, and do not violate the System Conditions, “it may safely be deemed to come within the compass” of The Natural Step’s Framework, and, hence, be considered *bona fide* steps toward sustainability.

Using the whole compass—not just the backcasting component—is a fruitful method for changing your perceptions about living and working in more sustainable ways. Having become acutely aware of your own self-interest relative to the hazards of an unsustainable future, you learn a “common language” and a distinct mental model enabling more effective communication and decision-making. The compass strategy offers unusual promise for stimulating people to open their minds, shift their thinking, and change their limiting beliefs. The backcasting element “invites people to be optimistic and positive as well as to be respectful of the realities of life and the needs of others.”<sup>153</sup>

When skeptics see we do not have to create a bloody revolution to bring about sustainability, and that, in fact, sustainability is feasible, viable, and even profitable, they are far more willing to take the “natural step.” By framing goals relating to a future desired outcome and, through systems thinking and the System Conditions, they determine the short-term decisions and investments needed to backcast to a desired future. By bringing the principles and the System Conditions into play, even skeptics can master The Natural Step Framework.

They can become sufficiently skilled at handling the fine points “to stay on course as they process the myriad bits of information and decisions involved in long-term planning. If they lose sight of the principles, they will most likely fail, especially if their goal is complex.”<sup>154</sup> When people recognize that it is in

their own *self-interest* to align their life, work, values, and visions with the System Conditions, they will not lose sight of the principles. By following the compass strategy outlined here, we can all advance toward sustainable and extraordinary outcomes.

As fruitful as we have found the compass and its powerful backcasting strategy to be, not enough people know about it or the rest of the framework. Thus, another compelling strategy awaits you in Part II. It invites you to invite others to change their perceptions fundamentally about living and working. It not only brings out the highest and best of who you are, it also introduces you to a delivery method for spreading The Natural Step Framework around the Earth. It gives you the tools and tips to attract people to the idea that it is in everyone's self-interest to make good use of the compass.

Let us now turn to the optimistic and appropriate technology called coaching and then to the Coach Five strategy.

**PART II**  
**Coaching for People to Flourish**



## CHAPTER 7

# Collaborative Spunk

## Your Basics for Co-Creating a Healthy and Flourishing Future

*... the path through which men and women can become conscious about their presence in the world. [reflects] the way they act and think when they develop all of their capacities, taking into consideration their needs, but also the needs and aspirations of others.*

—Paulo Freire

*Man can find meaning in life only through devoting himself to society.*

—Albert Einstein

*We haven't worked on ways to develop a higher social intelligence... We need this higher intelligence to operate socially or we're not going to survive.... If we don't manage things socially, individual high intelligence is not going to make much difference.... Ordinary thought in society is incoherent—it is going in all sorts of directions, with thoughts conflicting and canceling each other out. But if people were to think together in a coherent way, it would have tremendous power.*

—David Bohm

### Foothold

Given that the forces of the metaphorical funnel ram social, economic and ecological misery our direction, what is the soundest strategy we can fashion to speed up the shift to living in harmony with Nature's cycles? What will it take to open the walls of the funnel? The same force, I submit, that has been at play in earlier cultural transformations: *a compelling vision, one that can spread quickly to the masses*. Only a compelling vision can inspire everyday caring

people to shift their values, their consciousness and thinking, and, of course, their actions.

Such a vision may become apparent when ordinary people know in their bones that a major change must come to pass, and better sooner than later. A solid, widely popular, heartfelt vision can trigger a totally fresh and remarkable period of history, a distinct epoch, resembling the simple story a persistent, intuitive voice urges me to “remember” from eons ago:

### **A Parable about Scattering Seeds**

In ancient times, there was a tribe of stressed-out hunters and gatherers. Several members of the clan were starving. Deadly volcanic gases combined with volcanic ash particles had poisoned the streams they had always relied on for fish, so there was simply not enough food for everyone. Just as the rainy season began, the children took their play sticks to a mud puddle and played “Stick the Fish,” an ancient tribal game. Like most games that transfer life lessons, “Stick the Fish” trained the tribe to subsist on their bountiful waterways.

Having lost her play stick, one child grabbed a tall wilted stalk that had recently been a beautiful sunflower. When her turn came, she poked at an imaginary fish and bunches of sunflower seeds fell into the puddle, ending up lost in the mud. The children were sad about the loss of the seeds because they loved to eat them and nearly all of this season’s sunflower seeds were gone. Many moons would pass before they would enjoy such tasty morsels again.

When the rainy season ended, the children, though hungry, were eager to run and play. Before long, skipping along their secret path, they came upon what had been their special mud puddle. Imagine their surprise when they discovered a small “sunflower forest” growing there.

As they feasted on their favorite snack, they remembered the girl “losing” the sunflower’s seeds there the last time they played “Stick the Fish.” The girl was the first to grasp the connection and suddenly had an idea. “Let’s play a new game,” she urged. “Let’s play ‘Lose a Seed in the Mud’ and see if we can make magic sunflowers again,” *and the little child led the others.*

The children loved the new game and came back a few days later. What they discovered certainly seemed magical: baby sunflower plants were emerging from the earth where the children had “lost” the seeds. From then on the children were happy and never went hungry again. And when they grew up they taught their children the new game, and their children taught future generations, and that is how early people co-created a new culture—agriculture—and spread it around the planet.

The new game—or vision—inspired people to see its benefits quickly and spread the new cultural idea to others. In so doing, they co-created a future where life would thrive and people would flourish for hundreds of generations. The discovery of agriculture brought about a momentous cultural transformation. Ordinary people co-created a brilliant new epoch.

Fast-forward ten thousand years and it is high time for *another* game and a different culture, a culture overflowing with vitality and reverence for all life. Building on ancient wisdom and the most sustainable ideas from previous tribal, agricultural, and industrial cultures, we, too, can invent a new game, make magic and “scatter seeds.”

In Chapter 12, I outline the *Coach Five* strategy, which provides the means for ordinary people to make a crucial difference in less than one generation by spreading the vision of a new life-sustaining culture. Equipped with the dynamic delivery system of coaching, the life-sustaining framework of The Natural Step, and a vision sufficiently attractive to existing *and* future generations, today’s children (of all ages) can midwife the birth of a new culture. Like the little child in the parable who led the others, you, too, have the choice to scatter life-sustaining seeds.

## Finer Focus

Keeping in mind the backcasting method from Part I, we now move into the *purpose* of our work together: *to co-create a healthy, prosperous and flourishing future for all*. We begin with purpose because it supports the vision of a life-sustaining culture. Purpose is what connects and energizes us to collaborate on this pioneering adventure.<sup>155</sup>

In this chapter, we shall purposely explore co-creating in a *leaderful* manner. We shall avoid the old “command and control” patriarchal style of bosses and underlings. We hold everyone as both a leader and a follower. Everyone has something unique to contribute. The whole is far more than the mere sum of the parts. Command-and-control is out. Co-creation is in.

### Co-Creating “Chaordic” Groups

Dee Hock, founder and CEO Emeritus of Visa International, coined the word “Chaord.” Hock uses it to convey the idea of systems of both *chaos* and *order*. If we are to co-create in a new way, it is instructive to explore the model for creating chaordic™ organizations developed by Hock’s Chaordic Alliance.<sup>156</sup> The model begins with Purpose, followed by guiding Principles, Concept, Structure, People, and Practice.

**Purpose.** Our Purpose is “to co-create a healthy, prosperous and flourishing future for all.” The Purpose energizes the life-sustaining vision for our generation and many more to come.

**Principles.** We already know the overarching Principles that will guide us in creating this future: The Natural Step’s four non-negotiable System Conditions that emerged from the scientists’ consensus on scientific laws essential for a sustainable society. In addition, we shall examine guiding Principles and ethics vital in coaching each other to shape a just and sustainable future. When we integrate the Purpose and Principles into our lives, we will naturally align our choices and actions with them.

**Concept.** The Concept, or general picture of the desired relationships, embraces the Purpose and Principles. Chapter 12 will explain the Concept in detail. For now, let’s simply say that the Concept involves learning to coach others to use The Natural Step Framework and then *doing* so in a way that spreads the message quickly. The Chaordic Alliance recommends that the Concept be an arrangement that participants see and trust “to be just, effective and equitable with respect to all discussions, decisions, and acts in pursuit of Purpose in accordance with Principles.” The Concept also deals with participants’ readiness, rights, and responsibilities.

**Structure.** Closely related to Concept is the Structure, or the “anatomy” of the organization. Chapter 12 will spell out the details of the Structure, which involves informal and self-organizing coaching circles. For now, it is important to note that there will be no need for constitutions or by-laws. Since the groups will be voluntary and not commercial, there will be no money exchanged and official documents will be inappropriate and unnecessary.

**People.** The shared Purpose, Principles, Concept, and Structure will attract People who choose to be involved. Ideas and suggestions for engaging such people can be found in Chapter 12.

**Practice.** Finally, the Practice segment will be gleaned from almost every chapter in this book. Coaching circle conversations, decisions, and actions will focus on the Purpose, Principles, and Practice until everyone grasps the various dimensions of co-creating a new culture. There is no single perfect answer or one right way. Each circle will apply the Principles to their own local situation while honoring human needs worldwide now and in the future. Specific coaching practices, of course, will be found in much of Part II.

Hock says if we get these pieces right, there will be an ever-increasing spiral of creativity resulting in “a self-organizing, self-governing complex capable of constant learning and evolution.” Such on-going unfolding, learning, and creativity is precisely what we seek.

## Unlimited Creativity

Creativity is paramount. We face an unprecedented crisis. To resolve it, we must think differently, creatively. One of the people who spent much of his career considering this matter was Willis Harman, an esteemed philosopher-futurist and social thinker. He was president of the Institute of Noetic Sciences from 1978 until his death in 1997.

I first met Willis Harman at an early 1980s Woodlands Conference on environmental and growth issues.<sup>157</sup> We found immediate rapport and enjoyed remarkable conversation as we focused on topics that intrigued us both: creativity and consciousness. I had recently completed my dissertation on the left and right hemispheres of the brain so I was particularly keen to converse with someone of his discernment and insight. In a new edition of his well-received book, *Global Mind Change*, revised just before his death, he reiterated a point we had talked about years before: the limits we consciously place on our creativity. There may be “no limits to the human mind” and to creativity other than “those we believe in.”<sup>158</sup>

Harman maintains that our collective belief systems “shape the world’s institutions, and are at the root of institutionalized oppression and inequity.” Moreover, as much as we wish it were not so, “the world’s belief systems, including our own, lock us into a death march toward the future.”

Because we often sleepwalk through life, we filter what we perceive through the tunnel vision of our belief systems, which themselves have been heavily influenced by our modern industrial culture. Certain belief systems put us in collective peril. Our beliefs limit our individual potentiality and creativity. Moreover, the pressures built into our daily lives can stifle our access to the extraordinary gifts that we all have.

To overcome these limitations it is critical that we learn how to suspend our beliefs. Simple awareness of such barriers may not be curative but will help dissolve resistance.<sup>159</sup> Then we are free to let our conscious mind gain access to our “creative/intuitive mind.” Easier said than done, of course, because “we have been thoroughly taught in Western culture not to trust ourselves—not to trust that ultimately we *do* know what we most deeply desire, and how to resolve our inner conflicts” writes Harman. For those who do learn to trust the creative/intuitive mind, the ego no longer dominates and such persons accept “answers coming from the deep intuition.” In the process, we let go of “all the ways in which the rational ego-mind maintains control (and all the ways we were taught in school as the right way to think).”

Harman’s spectrum of creativity includes at the low-end everyday accomplishments of the unconscious mind (multi-tasking while driving, for example).

Next are the aspects of “creative problem solving, such as intuitive judgment and hunches” and artistic creation. Nearer the high end of the spectrum, Harman mentions such phenomena as automatic writing (akin to channeling) and abnormally rapid healing (of self or others). At the extreme high end Harman places “the more unbelievable miracles” and scriptural inspirations. He maintains that different cultural traditions and different individuals will place a “credibility marker” some place along the spectrum, beyond which lies “the preposterous.”

Finally, Harman draws a connection between creativity and the wisdom emanating from the world’s various esoteric spiritual traditions, “the deep intuition connected to the one Universal Mind.” The implications are enormous: there are no limits to the creative/intuitive mind except the resistance we pursue ourselves. Moreover, “because of this connection to the All, problem solutions that come from the deep intuition will be to the benefit of all, not one solution at the expense of others.”

### Collaborative Spunk

If we are capable of connecting on a deep level with others through what we ordinarily call rapport (and what may actually be the Universal Mind at play), imagine what *intentional* co-creation might accomplish! To make that intent clearer, let us first define co-creation. One wonderfully appealing term my own intuition spawned, with a little help no doubt from the Universal Mind, is “collaborative spunk.” Playfulness is an essential quality that will serve us especially well in the face of a situation we can all agree is both difficult and complex.

Through the power of collaborative spunk, we can jointly express playfulness, resourceful courage, team spiritedness and supportive daring. Spunk is not constrained by traditional ways of doing things or accepted ways of being or thinking. Collective spunk allows for thinking together in new ways, exploring a compelling vision together, and taking meaningful action. It liberates us from domination by the old ways, habits, and institutions. Best of all, it lets us come from a place of good humor, experimentation, and a place of becoming.

I distinguish between being and *becoming* because we are no longer in a static position, that is, the “being” position. Rather, we have evolved to the point of taking a stand to co-create a healthy and prosperous future for all. The process of co-creating is all about *becoming* something new and fun and exciting and beneficial to all.

One way to view the contrast between *being* and *becoming* is to look at *becoming* as responding to the *edge of chaos*—that margin between order and

chaos: the place where we can “bring order and chaos into a special kind of balance.” The edge of chaos is where growth, evolution, and change take place because this balance point is “where the components of a system never quite lock into place, and yet never quite dissolve into turbulence, either. The edge of chaos is where life has enough stability to sustain itself and enough creativity to deserve the name of life... where new ideas... are forever nibbling away at the edges of the status quo, and where even the most entrenched old guard will eventually be overthrown.”<sup>160</sup>

“Being” we often clumsily associate with the sphere of order, a place where creativity is not particularly in its element. In this sense, the sphere of order symbolizes stagnation. The sphere of chaos, of course, represents anarchy and confusion. That’s not an especially creative place either. Therefore, we want to get to *the edge of chaos* and the dance of co-creation will draw us there.

Another way to look at the difference between *being* and *becoming* can be gleaned from Dee Hock’s thinking on the matter: “Life is uncertainty, surprise, hate, wonder, speculation, love, joy, pity, pain, mystery, beauty and a thousand other things we can’t yet imagine. Life is not about controlling. It’s not about getting. It’s not about having. It’s not about knowing. And it’s not even about being. Life is eternal, perpetual becoming, or it is nothing. Becoming is not a thing to be known or controlled. It is a magnificent, mysterious odyssey to be experienced.”<sup>161</sup> Thus, I challenge you to go beyond “being” or the much-touted “way of being” to the more dynamic place of collaborative spunk, or “co-creative becoming.”

*Co-creative becoming* reminds us that everything is moving, fluid, connected—“no man is an island.” We cannot go it alone. As a social species, we need each other. We are more effective when we work together to create the future. We often move forward faster when we share our energy and momentum and co-operate as two or more Step Heads—the nickname fondly given *aficionados* of The Natural Step.

Consequently, collaborative spunk is one way we can begin to coach others to design the quality of life we all want, to enact our shared vision jointly, with a spirit of innovation. In short, “to think together in a coherent way,” as David Bohm wrote. Given the unknown thresholds and the Nemesis Effect of potential interactions, we will be wise to do so as swiftly as possible.

We now have the liberty and power to mold two superb knowledge bases into a higher social intelligence: The Natural Step Framework and Life Coaching’s delivery system and skills. Together with the Coach Five Project, these will speed up social transformation before we reach the point of no return. Such a strategy is one way to address the “ethic of time,” what the

United Nations Educational, Scientific and Cultural Organization has called our moral imperative.<sup>162</sup>

### Coaching Motivates People

Aside from self-imposed limiting beliefs, one of the biggest barriers blocking the way toward a new life-sustaining culture has been the *lack of motivation* to shift from the status quo and business-as-usual. Deep within, we know we are jointly responsible for a sane, safe, and humane future. Indeed, countless books and articles tell us that millions of people have experienced an awakening of a new consciousness.

We now possess the body of knowledge to rectify much of the damage we have wrought. The technological tools for sustainable natural capital production systems are at hand. Good examples of healthful and profitable outcomes exist where commercial and governmental entities have implemented The Natural Step Framework.<sup>163</sup> The American Planning Association and the Episcopal Church USA have resolved to put the framework at the center of their strategic planning processes. Truly, what is missing is motivation at the critical mass scale.

In both a fortunate and fitting manner, the capacity to *motivate* is alive and thriving within the *coaching* process. Whether we are talking about sports coaching or Life Coaching, the process inspires most people to go well beyond where they would go on their own. Life coaching is a mentor-like partnership that motivates individuals to focus on strengthening themselves so that their lives become less stressful, more meaningful, and more fulfilling. It inspires, encourages, and guides people to discover and live their purpose.

Life Coaching is a powerful means of raising awareness about the role of consciousness in everyday life and work, of getting needs met legitimately, and of relating more compassionately with others. The coaching mentality itself contains seeds of the new life-sustaining culture: compassionate attitudes, healthy relating skills, new sparks for learning, and openness to new ways of doing things and new ways of becoming.

Through common sense and mindful questioning, a Life Coach may use inspiration—a robust variation of motivation—to shift someone’s perspective, say, *from* fear and anger *to* coming from a proactive place of joy and compassion. This may entail stimulating coachees to reflect on how their outlook about themselves, others, and the world creates particular consequences in their lives.

By asking them how their outcomes might be different if their frame of reference shifted in given ways, we frequently help people to see themselves

and the world in a new way. When I am coaching people around such frames, I often hear them exclaim, “I never thought about it *that* way before.” When the coach hears that, s/he knows it is the beginning of a “shift.”

A “shift” is a big internal growth step that is noticeable and deeply felt. It is like a cognitive earthquake. The world looks different afterwards. Old motivations fall away; more appropriate ones emerge. Certain shifts can be turning points in people’s lives. The shifts I find most beneficial for people who want to begin to live more sustainably include:

- From having → to → being
- From being → to → becoming
- From attempting to satisfy nonmaterial needs through material means → to → getting material and nonmaterial needs met legitimately and appropriately
- From external power → to → authentic power<sup>164</sup>
- From irresponsible hedonism → to → reverence for life
- From unsustainable → to → sustainable ways of living, relating and working

When people have made these shifts, little can divert them from moving forward sustainably. With the new perspective on life and the world and the new awareness of *who* one is and can become, actions easily and naturally align with the new ways of thinking.

A *shift* acts as a catalyst for a person to change from the inside out, often permanently and positively. This may mean that a lighter attitude replaces a self-defeating one, a limiting belief system melts away, priorities churn, a bias dissolves, or a position changes, sometimes dramatically. Following a shift on the inside, your outward behavior often changes as well.

The first shift cited above, *from having to being*, found its inspiration in the brilliant ideas of philosopher and psychoanalyst Erich Fromm as expressed in his now classic work, *To Have or to Be?* Fromm saw these basic ways of existence competing for the spirit of humanity: having and being. Based on greed, envy, and aggression, the “having mode” concentrates on material possessions and power. He perceived *having* as “egoboundness and egotism.” As the dominant mode in modern industrial society, it has brought us, in his view, to the brink of ecological and psychological catastrophe. The dogma of having “enslaves us.”<sup>165</sup>

In contrast, the “being mode” is rooted in love and the full flowering of human values over material ones. For Fromm, *being* is “life, activity, birth,

renewal, outpouring, flowing out [of oneself], productive expression of one's human powers." In Fromm's being mode, craving and excessive self-indulgence do not exist, but rather there is a "flowing" or "running" into peace—indicating action or movement, not stillness or stagnation. It manifests itself in the pleasure of shared experience and truly productive activity.

The second shift I want to clarify deals with the distinction between authentic and external power. Here we are talking about the difference between the "power to" vs. the "power over." That is, the "power to" love, serve, live in harmony with others and the Earth, and make healthy ethical choices (authentic power) as opposed to the "power over" others that seeks control over the environment and those within it (external power).

"External power," maintains Gary Zukav, is the *power over* what can be felt, smelled, tasted, heard, seen. Until now our species has evolved by exploring reality with our five senses, which Zukav believes limits our perception and leads to fear, insecurity, dominance, patriarchy, violence, greed, and destruction. A negative energy, external power can be gained or lost. "The same energy that sent warships to the Persian Gulf sent soldiers to Viet Nam and Crusaders to Palestine," says Zukav.<sup>166</sup>

Convinced that "competition for external power lies at the heart of all violence," he believes that our institutions and their symbols—badge, boots, rank, uniform, weapons—reflect the patriarchal mind set. He suggests that the representatives of patriarchy fear engaging the world without their defenses; the rest of us fear the power that these symbols represent.

Fortunately, we are evolving a new understanding of power. Zukav calls it *authentic power*, what I call "power to." He says authentic power is the power to discern "meaningfulness and purpose in the smallest details upon the Earth." People cannot buy this kind of empowerment. They cannot beat it into others or leave it to an heir. When we experience it, we become the highest and best of who we are and "we are filled with enthusiasm, purpose, and meaning. Life is rich and full. We have no thoughts of bitterness. We have no memory of fear. We are joyously and intimately engaged with our world... the idea of using force against another" is not part of our consciousness.

Fromm's *having* mode and Zukav's notion of *external power* are clearly related. Both modalities can be seen today at the beginning of the 21<sup>st</sup> century in the new crusades that seek "power over" people, their minds and hearts, the popular vote, genes, indigenous medicines, old growth forests, petroleum reserves, and the whole planet. Most of us recognize that the domination approach is not working. It is easy to see that patriarchy's top values—to be stronger and have more than others, to exploit

the weak with the use of force, and to seek control and “power over” others—are simply unsustainable.

Coaching can make a substantial difference here. In addition to shifting outlooks, a coach may evoke meaningful action or inspire a mental leap from a stubborn ideological position to a stand for the common good. You will recall from Part I how important taking a stand turned out to be in the social transformation of South Africa. It was in everyone’s self-interest to support the Flamingo story, a story that unmistakably motivated South Africans.

By way of illustration, coming from a place of curiosity and inquiry, the coach may bring into question limiting beliefs or ideological positions and then encourage the taking of a stand for something greater than the self or something for which future generations will be enormously grateful. Such challenges often prompt forward action. They may also increase self-confidence because the elimination of an oppressive belief liberates the coachee to become authentically who they are. An example is the person who “believes” she cannot express her authentic self in her relationships. Reminding her that the world “needs” her unique gifts may unleash her chains.

Coaching motivates people and moves them forward in many ways. In later chapters, we will explore other motivating outcomes. The process excels at helping people to clarify, update and re-prioritize their values and to identify and get a jumpstart on satisfying their unmet needs. When this transpires, people are much freer to imagine a new story for themselves, their communities, and the world. Inspired, they connect with a compelling vision that pulls them forward.

Furthermore, the coaching process works well within groups—or *coaching circles*, as we will call our groups in the Coach Five Project, especially in creating safe spaces and evoking everyone’s voice and opinion. These groups will allow for drawing still other, more expansive “circles” that have the potential of enveloping more inclusiveness and unparalleled opportunities to serve everyone’s interest worldwide.

### Super-Exponential Evolution

Since coaching can facilitate motivation and basic shifts with individuals, groups, and commercial organizations, it can also facilitate the evolution and transformation of larger and more complex social and geographical entities. When *enough people* “have attained an insight into the basic inter-relatedness of all things,” wrote Richard Trowbridge, “we will begin to heal the wounds caused by holding a view that we are separate from each other and from the earth.”<sup>167</sup>

Chapter 12 outlines an effective strategy for using the coaching delivery system to convey The Natural Step Framework to “enough people.” As more people explore this strategy, they will co-create sustainable and cyclical ways of living. The multiplier effect of the Coach Five Project will take on a momentum of its own and, in a brief span of time, we ordinary people will have co-creatively amplified the forces of cultural transformation. Public opinion will then be able to sway pressure points in society toward a healthy and prosperous future for all. Decision-making at the community level upward will thus have a framework for life to thrive on this planet and for all people to have the opportunity to flourish.

Coaching has the capacity to encourage optimism, synergistic relationships, lifelong learning, open-mindedness, expanded horizons, inclusiveness, collaboration, meaningful dialogue, empowerment and wholeness. Coaching can elicit alternative thinking about the future. In my personal experience, I have witnessed repeatedly how coaching encourages people to evolve and fulfill themselves, the outcome often resulting in their contribution to the greater good.

Coaching is *education evolved beyond itself*. As such, coaching may give generic education a huge challenge during the coming decades, forcing alternative thinking on entrenched interests not only in education, but all sectors of society. What I see emerging from linking the coaching process with The Natural Step Framework is what Edward O. Wilson calls *super-exponential evolution*: “after A.D. 1400 European-based civilization shifted gears again, and knowledge and technology grew not just exponentially but super-exponentially.”<sup>168</sup>

For those of us alive and well after A.D. 2000, the task ahead is to shift gears yet again—super-exponentially. It will be up to everyday caring people to extend our knowledge of The Natural Step Framework with the delivery system of coaching to a critical mass in such a way that most everyone finds it advantageous to integrate the wisdom into the very foundations of the new culture. Super-exponentially, the process will spread and ordinary people will make the world, as Pablo Casals said, “worthy of its children.”

### **The Coach and Co-creation**

The coach’s function is to facilitate, champion, and evoke self-discovery in another. What often follows is the co-creation of strategies and actions for actualizing aspirations. Unwavering support, a confidential space for clarifying the present reality, a sounding board for new awareness and learning and supportive structures for growth make for sustainable success.

What I want for the people I coach is for us to co-create strategies that help them reach the point where they can first sustain and then realize a compelling vision that is far larger than they are. During their growth interludes, I hold the vision.

The coach encourages the coachee to discover the highest and best of who s/he is. Such co-creative “prompted self-discovery” enhances insights and personal growth. It shifts the coachee from downstream to upstream where s/he can handle potential problems, at the source, before they emerge as complex, full-blown problems. *Prompted self-discovery* promotes action congruent with values and vision, and, ultimately, sets people onto a life-supporting path.

This process has ripple effects. So much so that not too long from now, “enough people” will shift to a new life-supporting culture.

### Sustainability Coaching Principles

We are witnesses to a complex revolutionary social transition already underway. It is complex because it involves the evolution of human consciousness, our competing belief systems, and our economic system and its impact on our life-support systems. It is revolutionary because this transition, depending on which path it takes, has the potential to change our world more dramatically than it has changed since the end of the Age of Dinosaurs sixty-five million years ago.

A multi-layered changeover, this transformation encompasses the human spirit and a consciousness capable of embracing widespread meaningful relationships with Nature, with the “Universal Mind,” with each other, and with an integrated self. Everything is connected. The transition *requires* our compassionate attention and our collaborative spunk.

We learned in earlier chapters that we benefit most in complex situations when we apply central guiding principles. Just as The Natural Step Framework relies on principles for its effectiveness, coaching for a sustainable future also depends on the integration and application of certain principles and ethics. While a number of standards and ethics exist in the coaching profession,<sup>169</sup> the ones of most interest to those of us coaching people on The Natural Step Framework differ from conventional professional ethical assertions.

The ethical principles in Figure 7-1, with supporting statements, reflect my conception of Sustainable Coaching Principles adapted from personal experience and collective wisdom:<sup>170</sup>

- I. *Humanity cannot withstand the continuous loss of life-support systems nor predict the point of no return; the **ethic of time** bids us to act rapidly and purposefully to thwart catastrophe*
  - *The dynamics of evolution comprise an array of possibilities, including reverse evolution and mass extinction*
  - *A consciousness of the inter-relatedness of all life is rising worldwide. What is good for the whole benefits everyone*
  - *This race against time is an ethical urgency for fundamental social transformation, distinct from widespread personal transformation*
  
- II. *Society's unsustainable activities and values represent a cultural crisis to which the **continuum ethic** linking past, present and future applies*
  - *The past collapse of cultures reminds us of the fragility of all civilizations. Present human activity creates the fate of future generations; our ethical responsibility is to balance the needs of today with those of the future without denying the lessons of history*
  - *The celebration of both our universal oneness and our cultural uniqueness deepens the social values essential for leading humane, meaningful, and fulfilling lives. Cultural imperialism and market-driven uniformity provoke wide-ranging prejudice and threaten languages, 3,000 unique cultures, medical folklore, and our common future*
  - *The potential of voluntary coaching with its economies of scale is enormous for rapid cultural change*
  
- III. *The **ethic of human development** holds that human development is society's purest purpose. As an effective delivery system, coaching may be humanity's best prospect for rapidly shifting to sustainable consciousness*
  - *Coaching affects perspectives and spurs the evolution of our species' highest values*
  - *Learning is social; coaching stimulates a higher social intelligence, lifelong learning, cultural and transdisciplinary cross pollination, collaboration, and empowerment*
  - *The coaching process facilitates transformation. Recognizing that everyone has gifts, the process is not prescriptive but expresses a tacit respect for people's goodness and expertise within their own unique situations without volunteering uninvited advice, unsought judgment, or unsolicited opinions.*
  - *Sustainability coaching empowers people to change their hearts and minds and thus the world; people can withhold legitimacy from social institutions, no matter how powerful; by deliberately holding and then realizing a positive shared vision of*

- a democratic, just and sustainable future, people can change collective limiting beliefs, and hence humanity's prospects*
- IV. Sustainability is as much an ethical precept as it is a scientific concept; it is as concerned with the **ethics of social equity, human health, and economic justice** as it is with the systematic view of Nature
- Sustainability will either take hold or fold at the local level; a vigilant and informed world public representing local communities across the globe powerfully counterbalances trans-national vested interests
  - Literacy in science, ecology and human development are as essential for understanding the world in this 21<sup>st</sup> century as the traditional skills of reading, writing and arithmetic were in the 20<sup>th</sup>
- V. **The complexity ethic** recognizes that ordinary people are worthy of receiving full information about the complexity of problems we all face; simplification of complex issues misrepresents their reality, discounts people and defrauds all stakeholders
- The personal is political and the political is personal; the notion of “neither left nor right but forward” emphasizes engaged citizenship that enhances social conditions of human life as well as individual well being and transformation
  - In the face of complexity, honoring our connections elevates our abilities to communicate, envision and enact a healthy, sustainable, and prosperous future; co-creation spurs wise and ethical choices

Figure 7-1. Sustainable Coaching Principles

Implicit in these principles are *values* that 1) honor all life, not solely human life, 2) acknowledge the basic goodness in all people, 3) recognize the frailties of human institutions, and 4) celebrate our “power to” challenge the legitimacy of institutions that imperil all life.

## Farewell Footprint

Collaborative spunk celebrates the inherent goodness, collective wisdom, and untapped creativity of ordinary people. In less than a generation, we ordinary people have the “power to” co-create and scatter the seeds of a healthy and flourishing future. The dance of co-creation—or collaborative spunk—pulls us to the dynamic edge of chaos where all growth and change take place. Coaching dialogues motivate and inspire us to move forward toward our shared vision of a new sustainable culture reflective of our unique selves and our particular communities.

Major shifts help us change from the inside out. The coaching process can empower us to enact the sustainable vision “super-exponentially.” Through “prompted self-discovery” we let go of limiting beliefs and other barriers to our full unfolding.

Co-creative coaching conversations liberate us to express our inherent creativity and gifts for the good of our local community, the planetary community, and ourselves individually. Learning together to make wise and ethical choices in alignment with The Natural Step Framework moves us forward toward consciously fulfilling our shared purpose. Co-creation borrows the best from our past traditions with application to our present needs, while our new knowledge base of sustainability coaching honors the needs of generations yet unborn.

With collaborative spunk, people can develop a groundswell of public understanding and motivation for super-exponential evolution toward a harmonious and sustainable society. Guided by The Natural Step Framework and sustainability coaching, people will reclaim their “power to” shape a world that works for everyone.

In preparing to coach our communities about The Natural Step Framework, we will integrate several ethical principles: the ethic of time; our cultural crisis and the continuum ethic; the ethic of human development as society’s purest purpose; the ethics of social equity, human health, and economic parity; and the complexity ethic.

Together we can give rise to a far more positive future than would otherwise unfold if we merely sat back and let the chips fall randomly. Most importantly, through our visionary stand and collaborative spunk, we shall co-create a new ethos aimed at protecting the life-support systems and well being of everyone, an ethos worthy of our grandchildren seven generations hence.

We turn now to the human development leg of our shared adventure, where we will explore personal growth and how to evoke the highest and best of our species, individually.

## CHAPTER 8

# Personal Growth Upgrading Your Values, Need “Satisfiers,” and Self-esteem

*I am playing with my Self, I am playing with the world's soul,  
I am the dialogue between my Self and  
el espíritu del mundo.  
I change myself, I change the world.*

—Gloria Anzaldúa

We can tell our values by looking at our checkbook stubs.

—Gloria Steinem

### **Foothold**

The personal growth movement has been around now for at least three decades. Also known as the human development movement, the consciousness movement, or the human potential movement, this phenomenon has produced millions of publications, media events, workshops, seminars, and personal product lines. As it has evolved, the field of human development has created new choices for people, new forms of conveying wisdom, and new insights into the possibilities for humanity.

Since the 1960s, the human and personal development field has evolved through three waves.<sup>171</sup> First came the human potential movement with its focus on “peak experiences” and quick fixes in weekend workshops or “awareness” seminars. With the realization in the 1970s that the quick fix “tended to fade rapidly,” in the words of consciousness sage Ken Wilber, the “plateau experience” replaced the peak experience. The second wave focused on the sustained practices of yoga, dream-work, psychotherapy, physical fitness, sacred dance or some other form of human development.

By the mid-1980s, we realized that emphasizing one or two lines of human development unbalanced us and we shifted toward whole person development projects, or as Wilber says, “integral practice.” Still in its infancy, the third wave—that of universal and wholeness practices—is still finding its way toward personal and social transformation.

The personal growth trend has also manifested in a vast array of approaches. The range includes spiritual movements, job-fulfillment, coaching, wellness, personal mastery and learning, humanistic and transpersonal psychology, psychoanalytical therapies, and certain New Age experiences. Each approach emphasizes its own concepts relating to human development and its own manner of developing people.<sup>172</sup>

Here, obviously, we will explore only selected strands from this burgeoning field. Themes in this chapter align with our overarching purpose of co-creating a new life-supporting culture: taking care of oneself, needs satisfaction, self-esteem, and integrating premier values. Later chapters deal with related topics. While far from definitive, this chapter provides a basic substructure central to personal growth as we co-create a new culture in our corner of the world. Let us begin with the Oxygen Mask Metaphor, our rationale for personal growth.

## Finer Focus

If you have ever been on a commercial flight, you are well aware of the caution relating to the oxygen masks stowed overhead each airplane seat. The flight attendant’s recitation usually goes something like this: “In an emergency requiring oxygen, a mask like this will drop down from the ceiling.” There is a pause while a mask is held up for all to see. “We ask all passengers traveling with small children to slip the mask on themselves *before* placing the mask on their children.” Another pause, and then the rationale:

“The reason is simple. You will not be much help to your children if you pass out because you cannot breathe. Take care of yourself first. Put *your* mask on first.” Like most people, off the plane you probably feel that in real life you do not have the time or patience to take care of one more thing. Ultimately, you will see the wisdom of this metaphor. For example, if you get sick, you will not be helpful to yourself, others, and the world. If you depend on adrenaline to get everything accomplished, you can wear out your adrenal glands, and before long your immune system. Then, you are in a pickle.

The oxygen mask metaphor reminds us that we will not be much help to others in almost any situation unless we take care of ourselves first. What does

it look like to put on our oxygen masks first? From a coaching standpoint, taking care of yourself entails examining multi-layers of who you are and then carrying out multi-levels of care. You examine all aspects of your life. You choose to strengthen the foundation upon which your life rests. You consistently take action supportive of being and becoming your best self.<sup>173</sup>

*Taking care of yourself first* means that you pay attention not just to the health and well being of your body ensuring you will have the physical strength to make a positive contribution, if that is your aspiration. You also choose to take care of the health and well being of your heart, mind and spirit. Essential for sustaining the inner stamina required to experience the full texture of what life has to offer, tending to your heart, mind and spirit enhances your vitality for nurturing your unique gifts.

*Taking care of yourself first* involves opening your mind, expanding your heart, and letting your spirit soar. It means getting to know the highest—some prefer deepest—and best parts of who you are, discovering your destiny, and reaching for the stars. It means coming from a place of joy most of the time rather than from fear—despite inevitable surprise events in our complex reality requiring a well-toned fight or flight fear muscle. Fear real dangers, not gremlins.

For a variety of reasons, not everyone has spent time examining the whole of who they are, much less who they can become. Today's modern societies breed unique stresses. Leisure time, when we do not feel exhausted, is rare. Worn out emotionally and sleep deprived physically, beyond work we still have family and social commitments. Someone has to take the kids to the doctor, the dentist, music or ballet lessons, scouts, ball practice, playgroup, and birthday parties.

More often than ever, parents miss a child's special "win" on the soccer field or in the school play because they have to put some semblance of bread on the table. The parents of kids who are grown and out of the nest still work long hours to pay for college education, credit card debts, the mortgage, medical bills or a vacation. Most feel obliged to save for retirement because Social Security will not be enough. To top all this off, many ache for deeper relationships, meaning, purpose and authentic community. Alas, as the stress and exhaustion multiply, there never seems to be enough time.

The point is this: Most people would prefer a quality of life far less exhausting than the stressful norm. Most of us would adore spending time following our bliss. We would welcome taking better care of ourselves. Most of us would revel in putting the metaphorical oxygen mask on first.

So, what stops us from creating quality and well-being in our lives? What do we really want out of our lives? Exhaustion? Of course, not. Something

else is going on here. Something big is missing. Part of it is the VAS Gap, composed of Vision, Accountability and Strategy, topics we shall address in a later chapter. First we must build a basic substructure robust enough to hold a compelling vision.

From the personal growth viewpoint, that substructure has to be strong enough to withstand the inevitable “storms” that brew in our constantly changing and complex world. The three footings that underpin this human development base and provide security and stability are human needs, self-esteem, and values. Getting our needs met, enhancing our self-esteem, and updating our values are essential moorings for personal growth and change.

Let’s look first at the difference between needs and wants and then explore the shift toward getting genuine needs satisfied.

### **The Radical Shift: Meeting Universal Human Needs**

Human beings everywhere dance with a basic set of needs. When human needs are satisfied, people are more apt to be healthy—mentally, emotionally, and physically. Getting our needs legitimately satisfied safeguards our well being and frees us to become the highest and best of who we are. Earlier we saw that the non-negotiable System Condition Four requires that human needs be met worldwide in order for society itself to be healthy and sustainable.

When human needs go *unmet*, people of any economic standing can be “needy” in some manner and nothing they experience grants genuine fulfillment. They may suffer great emotional pain, cynicism, poor self-esteem, greed, violence, and more. Needs that go unsatisfied contribute to psychosomatic illnesses, mental disorders, physical disease, and even terrorism.

Unmet needs affect us individually and collectively because, as we learned in Part I, everything is connected. Ecologically, socially, and economically, unmet needs are unsustainable. Widespread unmet needs are capable of felling entire civilizations, as we saw with the Easter Island story. Indeed, unmet needs can spawn terrorism that aims to destroy civilization. It is in our enlightened self-interest, then, to help others meet their needs even as we meet our own.

Gandhi was fond of saying that the way to a pure heart is realizing the difference between needs and wants. As used here, a need is an “impoverishment,” an emptiness, or a lack—often non-material, preventing humans from experiencing their profound humanity. A need can also represent a possibility.

A “want” implies a goal or an aspiration—material or non-material. In cultures centered on commerce, “wants” generally revolve around things, material goods. People in such cultures often attempt to satisfy non-material needs

through material means. When we blur needs and wants, we cannot genuinely satisfy our needs.

Gandhi's distinction between needs and wants, at root, deals with character. One definition of character is who you are *without* your possessions. Take a reflective break and ponder these questions: How do you define yourself without your possessions? How revealing is the way you define and satisfy your needs? Are your "needs" really about wants? How does the way you meet your needs describe your character and the purity of your heart?

**Manfred Max-Neef.** Operating under the premise that each individual is unique, Chilean economist Manfred Max-Neef tells us that each person *satisfies* his or her needs in unique ways. Moreover, each culture differs in the ways its people satisfy their needs. While the *way* people *satisfy* their needs may differ, Max-Neef holds that all people share a set of universal needs. He says that our earliest ancestors' needs included *Survival, Protection, Affection, Understanding, Participation, Creation, and Idleness*. Somewhere along the evolutionary path, *Identity* emerged as a recognizable universal need. More recently, the need for *Freedom* ignited. Today, the need for *Transcendence* sweeps the planet. With the exception of *Transcendence*, Max-Neef says, the rest are now universal in all cultures and over time.<sup>174</sup>

Working closely with ordinary people in many countries, Max-Neef developed a system for spurring not only personal responsibility and local self-reliance but also a system for supporting people to satisfy their human needs.<sup>175</sup> Satisfy is the operative word here. What many of us would mindlessly call a need, Max-Neef classifies as a *satisfier*. In his view, satisfiers are forms of Being, Having, Doing, and Interacting. They are not consumer goods you buy. Rather, satisfiers are traits, structures, actions and settings that adequately satisfy our fundamental needs.

Presenting his needs system as a matrix with the "modes of experience"—Being, Having, Doing, and Interacting—across the top, Max-Neef lists the universal needs vertically down the left side of his matrix. (See Appendix A.) Because his design evokes brainstorming, dialogue, and action, it holds great promise for meeting human needs personally in a group setting and at the community level in multiple neighborhood workshop settings, the outcomes of which ripple from the bottom up.

In Max-Neef's Matrix (in Appendix A) you can see that there are 36 blocks: 9 needs multiplied by 4 modes of experience. Taking Block 15 as an example, we find that the satisfiers for Understanding-Doing may include "investigate, study, experiment, educate, analyze, and meditate." Block 16 suggests these satisfiers for Creation-Having: "abilities, skills, method, and work." Satisfiers

for Identity-Being for some people may be “sense of belonging, consistency, differentiation, self-esteem, and assertiveness,” as noted in Block 29.

These are not conclusive. Max-Neef encourages us to add our own satisfiers since the needs are universal, yet the satisfiers are flexible. Affection, for instance, gets satisfied among different people and different cultures in diverse ways. Passion and sensuality reflect the uniqueness of certain individuals or cultures. Intimacy, expressing emotions, and friendships might be another’s. Other satisfiers for Affection might include a sense of humor, generosity, self-esteem, privacy, connecting with nature, family, sharing, or appreciation. The same variation holds true for each need.

**“Poverties” and Pathologies.** Any fundamental need not adequately satisfied, Max-Neef suggests, will reveal a “human poverty.” A “poverty of Affection” or a “poverty of Protection” may expose a dysfunctional family or an oppressive workplace.

The crux of Max-Neef’s approach to needs is that “poverties” can generate *pathologies*, such as fear and violence. Under the guise of satisfying the need for Protection, for instance, he suggests that the “Arms Race,” rather than satisfying the need, has become unsustainable and pathological. It paradoxically impairs “Subsistence, Affection, Participation, Freedom,” he says.

Indeed, Max-Neef dubbed this pathology and other false satisfiers like it “Violators and Destructors” because they not only destroy the possibility of satisfying the need (for Protection, in this instance), “but they also render the adequate satisfaction of other needs impossible.” Such “paradoxical” satisfiers, he says, “are invariably imposed on people.” Other examples of Violators and Destructors in Max-Neef’s scheme include Exile, Censorship, Authoritarianism, and Bureaucracy.

Exile, he says, “inhibits” the satisfaction of several universal needs: Affection, Participation, Identity, and Freedom. Censorship curbs the satisfaction of the needs for Understanding, Participation, Idleness, Creation, Identity, and Freedom. Authoritarianism limits the satisfaction of the needs for Identity, Creation, Affection, Understanding, Participation, and Freedom.

Other pathologies in Max-Neef’s system include “Pseudo-satisfiers” and “Inhibiting satisfiers.” Pseudo-satisfiers kindle a false sensation of satisfaction of a given need and are usually prompted through propaganda and persuasion. A few of his examples include:

- Status symbols, fashions and fads, Chauvinistic nationalism, all three of which inhibit the satisfaction of the need for Identity
- Stereotypes, indoctrination, and aggregate economic indicators which

may “annul” the satisfaction of the need for Understanding

- Prostitution, which only seemingly satisfies the need for Affection
- Over-exploitation of natural resources, charity, and obsessive productivity with a bias to efficiency, all three of which limit the satisfaction of our need for Survival

Inhibiting satisfiers generally “over-satisfy” a given need, seriously curbing the possibility of satisfying other needs. Max-Neef gives these examples of inhibiting satisfiers:

- An authoritarian classroom is a satisfier intended to meet the need for Understanding, yet it inhibits the satisfaction of the needs for Participation, Creation, Identity, and Freedom
- Commercial television is a satisfier intended to meet the need for Idleness, yet it inhibits the satisfaction of the needs for Understanding, Creation, and Identity
- Paternalism is a satisfier intended to meet the need for Protection, yet it inhibits the satisfaction of the needs for Understanding, Participation, Freedom, and Identity
- An over-protective family is also a satisfier intended to meet the need for Protection, yet it inhibits the satisfaction of the needs for Affection, Understanding, Participation, Idleness, Identity, and Freedom

Discerning these pathologies in our fundamental needs system—personally and in our societies—is a crucial challenge. Once discerned, we can determine a strategy for shifting to legitimate or adequate need satisfaction. Changing satisfiers, incidentally, often signals personal and cultural change. One of the tasks of a coach using this needs system is to explore with the coachee his or her various satisfiers. Together, you and your coachees—or coaching circle—want to detect satisfiers that fall into the “poverties and pathologies” realm so that you can then choose more legitimate ways to satisfy your needs.

**Deprivation and Potential.** When we see human beings in terms of their needs, we see “the very nature of human beings,” says Max-Neef. Because of this, we are less likely to stereotype people. He suggests that needs express a “constant tension between deprivation and potential.” When working on needs, it is helpful to ask ourselves: What is missing in our lives and communities? Where do we feel deprived? Odds are good, he says, that we will feel certain unmet needs intensely. Max-Neef calls such a feeling a deprivation.

What is especially empowering about this process is that needs help us become aware of our potentials—not simply what is missing. For both individuals and for communities, the needs dialogue opens up new possibilities. For example, the need for participation is also “a potential for participation,” Max-Neef says, “and eventually may become a resource.”

Once you have started the Coach Five Project, through group dialogue or a coaching conversation, you can begin to identify the satisfiers that are not serving you well. You can then brainstorm the satisfiers that more fully meet your needs and the fundamental needs of your community. To get the dialogue started, ask: How well are human needs being met in our local community? How might a neighborhood group generate satisfiers that are more suitable? Are the satisfiers we have been relying on really violators? Are they inhibiting- or pseudo-satisfiers? Imposed from outside? From top down?

After heartfelt dialogue, your group will likely generate sound satisfiers, what Max-Neef calls *synergistic satisfiers*. These satisfiers, while satisfying a given need, also promote the satisfaction of other needs *at the same time*. An ideal example of this kind of satisfier on a personal level is that of “a mother breast feeding her baby.” The mother is, says Max-Neef, “*simultaneously* satisfying the infant’s needs for Survival, Protection, Affection and Identity. The situation is obviously different if the baby is fed in a more mechanical fashion.”

Two other examples of synergistic satisfiers are 1) preventive medicine—which meets the Protection need and also stimulates the satisfaction of Understanding, Participation and Survival; and 2) community-based home-building programs—which satisfy the basic need for Survival yet also contribute to satisfying the needs for Understanding and Participation.

Because satisfiers change over time, the process of needs satisfaction is not a one-time event. Plan to revisit satisfiers all along your life’s journey. Every chance you get, discard blocks and adopt satisfiers that bring joy into our world. We want ample synergistic satisfiers in our lives!

**Not a Linear Approach.** The beauty of Max-Neef’s system arises in the shift from linear-thinking to thinking about the whole: what personal *and* social blocks stop needs satisfaction, and what will generate positive ripple effects from the bottom up so that sound and synergistic satisfiers empower us to reclaim our lives and our communities. Needs satisfaction is a system where no need, except Survival, is more important than any other. Yet, blocks can lead us to extremes of self-destruction.

From the outset of the process, we can focus on realizing *all nine* needs by means of the on-going creation of the synergistic satisfiers. Rather than pushing toward a linear goal or a “hierarchy of needs,” we see needs as interactive

and interconnected. Since life itself is dynamic, this never-ending “dance” of actualizing needs promises to be a lifetime work in progress.

**Personal Fieldwork.** Examine the Matrix in Appendix A. Ponder the factors blocking your needs. Examples in the Being column may include selfishness and greed for Survival and Protection, family breakdown for Affection, prejudice for Understanding, apathy for Participation, guilt for Idleness, and so on. In the Having column, what institutions, norms, laws, or social mechanisms block your needs? Examples here may include material goals or mass conformity for Creation and loss of community for Identity.

What personal or collective actions block your needs in the Doing column? An example for Participation may be “give up responsibility.” In the Interacting column, what times, spaces, and surroundings block needs satisfaction? Examples may include pollution for Survival, Protection and Identity or warped priorities (how to spend one’s time) and isolation for Affection.

Next, respond to the *Universal Human Needs Worksheet*. With a friend, your coach, your significant other, or anyone who knows you well, begin a dialogue on personal blocks, collective pathologies, deprivations and potentials. How might you upgrade your satisfiers to meet your needs synergistically? Examples: achieve your potential for Identity-Doing; rebel or run risks for Freedom-Doing; take initiative for Participation-Being; expand friendships for Affection-Having.

Repeat the process from your community’s perspective. Ask what your community would have to be like for people to synergistically satisfy their needs. Find the most synergistic satisfiers to bridge the gap from collective pathologies to satisfying the needs of people in your community á la System Condition Four of The Natural Step. Bear in mind that it is in your self-interest to do your utmost to help others meet their needs. The sooner this happens, the sooner the funnel walls open to sustainability.

### Self-esteem

During the process of identifying and satisfying needs, you may discover that your self-esteem (or that of your coachee) is not quite up to par. In much the same way as the ambience of a lively restaurant influences the diners and their experience, the milieu and character of a society, community, or family also has an impact on its members and their self-esteem.

We can enhance self-esteem, and when we do, we enhance most everything in our life. We open to the beauty life offers and begin to cherish ourselves. As the value we place on ourselves increases, we also begin to accept, even cherish, others. We become healthier, more joyful, and begin to make a

## Universal Human Needs Worksheet

*Adapted from the work of Chilean Economist Manfred Max-Neef*

*by A. Gayle Hudgens, Ph.D. ©2000 All rights reserved*

**Instructions:** Respond to the following 36 items relating to your needs. Each item refers to “satisfiers” from one of the categories on **The Matrix of Needs and Satisfiers** (Appendix A). **Being** displays attributes expressed as nouns. **Having** registers structures such as institutions or non-material tools expressed in one or more words. **Doing** shows actions expressed as verbs. **Interacting** records locations and surroundings (as times and spaces). Satisfiers may show up under several needs and a need may require several satisfiers for fulfillment. For example, “work” may be selected for Survival, Protection, Participation, Creation, and Identity Needs. “Work” is not enough, however, to fulfill all your needs. You may add to the Matrix. It is not conclusive and shows examples only.

### A. Survival [aka Subsistence] (what you need to stay alive).

What satisfiers are you using to meet your basic *survival* needs about

- 1) Who you are (Being)
- 2) What you must have in place to survive in your public and private life (Having)
- 3) Actions you take, things you do to survive (Doing)
- 4) Time and space, location and ambience supportive of survival (Interacting)

### B. Protection (what you need to keep out of harm’s way).

What satisfiers are you using to meet your basic *protection* needs with regard to

- 5) Who you are (Being)
- 6) What you must have in place for protection in your public and private life (Having)
- 7) Actions you take, things to do for protection (Doing)
- 8) Time, space, location and ambience supportive of optimal protection (Interacting)

### C. Affection (what you need for giving and receiving fond, tender feelings).

What satisfiers are you using to meet your basic *affection* needs with regard to

- 9) Who you are (Being)
- 10) What you must have in place for affection in your public and private life (Having)
- 11) Actions you take, things to do for affection (Doing)
- 12) Time, space, location and ambience supportive of optimal affection (Interacting)

### D. Understanding (what you need for perceiving, discerning and comprehending).

What satisfiers are you using to meet your basic needs for *understanding* with regard to

- 13) Who you are (Being)
- 14) What you must have in place for understanding in your public and private life (Having)

- 15) Actions you take, things to do for understanding (Doing)
- 16) Time, space, location and ambience supportive of optimal understanding (Interacting)

**E. Participation (what you need for sharing and taking part in society).**

What satisfiers are you using to meet your needs for *participation* with regard to

- 17) Who you are (Being)
- 18) What you must have in place for participation in your public and private life (Having)
- 19) Actions you take, things to do for participation (Doing)
- 20) Time, space, location and ambience supportive of optimal participation (Interacting)

**F. Idleness (what you need for kicking back, taking a breather, playing).**

What satisfiers are you using to meet your needs for *idleness* with regard to

- 21) Who you are (Being)
- 22) What you must have in place for idleness in your public and private life (Having)
- 23) Actions you take, things to do for idleness (Doing)
- 24) Time, space, location and ambience supportive of optimal idleness (Interacting)

**G. Creation (what you need for artistic or imaginative production).**

What satisfiers are you using to meet your needs for *creation* with regard to

- 25) Who you are (Being)
- 26) What you must have in place for creation in your public and private life (Having)
- 27) Actions you take, things to do for creation (Doing)
- 28) Time, space, location and ambience supportive of optimal creation (Interacting)

**H. Identity (what you need for honoring all aspects of yourself and “knowing thyself;” your life purpose or meaning; why you are here).**

What satisfiers are you using to meet your *identity* needs with regard to

- 29) Who you are (Being)
- 30) What you must have in place for identity in your public and private life (Having)
- 31) Actions you take, things to do for your identity (Doing)
- 32) Time, space, location and ambience supportive of optimal identity (Interacting)

**I. Freedom (what you need for liberation, spontaneity, and spunk).**

What satisfiers are you using to meet your needs for *freedom* with regard to

- 33) Who you are (Being)
- 34) What you must have in place to be free in your public and private life (Having)
- 35) Actions you take, things to do to be free (Doing)
- 36) Time, space, location and ambience supportive of optimal freedom (Interacting)

positive difference in the world. Indeed, healthy self-esteem supports positive outcomes in our lives, the lives we touch, and through the ripple effect, the world itself.

Self-esteem refers to a profound gratitude for “who” one naturally and authentically is. It entails a self-trust of one’s own talents, worth, usefulness, and deepest intuition. It implies a healthy self-knowledge and self-acceptance rather than a narcissistic bias or an envy of others. Healthy self-esteem sustains us emotionally. It allows us to “live generously and peacefully, without delinquency or destructiveness,” says veteran member of the California State Assembly John Vasconcellos, “encouraging one another in our lives and in our growth.”

Like many thoughtful public servants and engaged citizens, Vasconcellos deplores the enormous sums U.S. taxpayers spend “to contain destructive behaviors, to compensate for human failures after the fact.” In 1989, we spent “more than a billion dollars each year for building prisons and two billion for operating them, as well as substantial sums for programs to address alcoholism, drug abuse, teenage pregnancy, child abuse, welfare dependency, and school dropouts.”<sup>176</sup>

It occurred to Vasconcellos that these programs were not about the goodness in people or cure or prevention. Rather they reflected the cynical view that people were evil and had to be controlled. Because he felt that self-esteem might be a “social vaccine” to reduce violence and a host of other social ills, he sponsored successful legislation that established a task force to investigate the links between self-esteem and the most lamentable social ills facing Californians. Such endeavors have encouraged others to focus on the social and personal importance of self-esteem.

Medical intuitive Caroline Myss, the author of *Anatomy of the Spirit: The Seven Stages of Power and Healing*, asserts that we need pride in our selves and our health—not the conceited kind of pride, but rather that pride that comes from faith and confidence in ourselves. Too often, we fall back on our old “wounds” because we feel ashamed of our strength, creativity, and intelligence: “We don’t know yet what it’s like to have self-esteem in such a way that we celebrate our strengths, and celebrate our creativity. We still go at it through our wounds. We still don’t know what it’s like to feel healthy without feeling embarrassed by our strength.”<sup>177</sup>

Myss suggests we need to shift our consciousness from someone always being there to take care of us or bail us out (parents, the government, and so forth) to “a more mature level of our own empowerment.” We need to shift from parent/child to co-creative partnership. Myss further links self-esteem to

the energy and enthusiasm we express at choice points to take on our personal power, to “hang on to vision and manage it day by day. Manage it with honor, manage it with integrity, and everything else will take care of itself.”

How does a person gain self-esteem? In our industrial society, many people hold the belief that there is a direct connection between self-esteem and how much money a person has or makes. This is an example of a *limiting belief*. Such a belief actually limits us in developing our full talents because we exhaust ourselves over chasing money rather than simply letting our innate gifts flourish.

We have all heard of miserable rich people whose money did not help their self-esteem one iota. Indeed, most of us know at least several people with low incomes and high self-esteem. They have worked hard to cultivate their gifts and, whether or not they have earned the respect of others, their self-esteem is healthy and intact simply because they experience in the highest part of themselves the quality of their work.

Believing that self-esteem depends on our success, however defined, also limits us. The same thing holds when we link our self-esteem with our possessions, the clubs to which we belong, or the people we claim as friends. Thus, examining our beliefs and discarding those that limit us is one way to gain self-esteem.

Another way is to focus on developing your strengths. When you feel your own talents flowering, your skills improving, when you satisfy your needs and express your gifts, you appreciate yourself more and gain self-esteem. When you sense you are living up to your potential, you gain self-esteem. When you know you have contributed something worthwhile to your group—anything from a class project or a baseball team to the family or neighborhood, you gain self-esteem.

Life Coach Steve Davis maintains that ultimately, self-esteem is an inside job: “we choose what to think about ourselves and this dictates our feelings about ourselves, thus the degree of our self-esteem.” Further, “self-esteem chasing” can become a conundrum, which is why he says “give it up and just be fully you.... the real you has no question about self-worth. The real you does not know degrees of value. The real you is free of the judgments that measure how much you’re worth compared to others. Surrender to the real you...be your SELF, you truest, inner self, and your esteem for this being will know no boundaries!”<sup>178</sup>

As we coach others to become their truest selves and enhance their self-esteem, we also benefit from the sheer joy derived from extending our caring beyond ourselves. Deep within we recognize that the healthier the parts of our

community, the healthier the whole. The healthier the whole, the better chance for a life-sustaining social transformation.

Thus, seize every opportunity to heighten self-esteem in others and make it a standard to give credit where credit is due. No puffery, though. Be genuine, be real. Whoever shows this regard, naturally, already has a healthy self-esteem. Grant yourself such credit, too, as long as you do so from a healthy self-empowered place and not as a self-centered jerk. When you change yourself, you empower others. Coach others to do the same and you help transform the world.

Fieldwork for self-esteem I often recommend is the Victory Log. Coachees make a home-made booklet listing all of their small and large “victories” over time—from a grade school spelling bee to a recent good deed—and then daily jot down small and large triumphs. On bad days—and we all have them—when there are no victories to add to the log, they simply spend a few minutes reading over past victories. Their self-esteem generally expands.

If you discover your self-esteem or that of the person you are coaching is not as sturdy as desired, professional help may be a fitting option. If therapy is not available, many communities offer support groups for those experiencing grief, divorce, and serious or terminal illnesses. Certain people find it useful to turn to their clergy or spiritual leaders for guidance.

More than a few people swear by the Re-evaluation Counseling communities, which train ordinary people to exchange help with each other as peers or co-counselors in order to “discharge” emotions connected with a past distress, fear, hurt, embarrassment, loss, pain, or anger. The resources of Re-evaluation Counseling (RC) have been used in many activities and nations. The RC communities provide tools particularly for those engaged in transforming and humanizing oppressive situations. Those encumbered by emotional confusion may benefit from RC counseling because it encourages personal growth together with effective participation in positive social change.

Note well that certain situations require far more solid professional help than peer counseling. Use your best judgment in such cases. Trust your intuition and common sense.

Co-creating a new life-sustaining culture requires legions of ordinary people thinking clearly and expressing their natural loving and creative abilities. The key is integration: the merging of all parts of the self—body, mind, and spirit—into the whole person and then integrating the whole self with society. Too often we loiter about the former and forget the latter.

“The happy... personality,” English philosopher and social reformer Bertrand Russell long ago wrote, “is neither divided against itself nor pitted

against the world. Such a man [sic!] feels himself a citizen of the universe, enjoying freely the spectacle that it offers and the joys that it affords, untroubled by the thought of death because he feels himself not really separate from those who will come after him. It is in such profound instinctive union with the stream of life that the greatest joy is to be found.”<sup>179</sup>

This unity, or oneness, with the web of life brings us genuine fulfillment. Seek mutual trust and caring, not dependence on things or co-dependence with others. Growing self-esteem is an *inside* job. Learn from *each* blunder. Bail *yourself* out. Applaud yourself *daily*. Meditate. Reflect. Pay attention to those you admire and how they respond to others and the world. Raise your standards. Strengthen your character. Discover your wholeness. Scatter your joy. Your best self and self-esteem will radiate.

### Values

One person whose best self has illuminated the world in the aftermath of the Cold War is the founder of Green Cross International, Mikhail Gorbachev. The former head of the Soviet Union who brought about “openness” in a tightly closed society now pleads for a new system of values, one that recognizes the organic unity between humanity and Nature and also promotes the ethic of global responsibility. “It is critical that we find a way to bring about rapid, sweeping change of human consciousness and actions worldwide—something that enables us to provoke a large-scale shift of course in a very short time,” he says. “This cannot be achieved if we remain divided.”

What will a new system of values look like? On a personal level, what does that mean for you? Starting with your best self, you want to be a whole yet unique self, fully aware of who you are. You want to live comfortably in your skin and take responsibility for your own well-being. Self-centeredness does not rule your life. You are more *interested in others*, as CoachInc.com CEO Sandy Vilas fondly asserts, than concerned about being *interesting to others*. You are adaptable and regularly refresh your worldview by upgrading your attitudes and aligning your values with social and ecological change in an increasingly complex world.

More deeply and broadly held than attitudes, values can nevertheless be defined as *organized patterns of one’s attitudes*. Changes in attitudes can have an impact on one’s value system. When your value system changes, “who” you are generally changes, and usually for the better. Who you aspire to become is highly dependent, then, on your values.

Values have societal consequences, often-crucial consequences. During the 1960s, to give an example from U.S. history, there were striking differences in

values among U.S. citizens, at the local as well as the national level. The “hawks” supported the Viet Nam war; the “doves” honored peace. Civil rights advocates valued equality for all; the segregationists vehemently disagreed. Such culture clashes may create chaos and violence, and often initiate social change.

Given the tight squeeze we presently face (see Chapters 1 and 6, specifically), it is vital that we find ways of healing our present differences so that we can honor new life-sustaining values. Such values would honor not just our personal lives and families, but the entire family of human beings, the entire “family of life” on Earth.

**Two Premier Values.** John Holmberg, Karl-Henrik Robèrt, and Karl-Erik Eriksson have proposed two overarching values that align with the System Conditions of The Natural Step. If taken seriously, they would stimulate “a revolution in the global human life” of the planet, as they put it.

The values they champion are:

- human life and dignity, and
- continued life on Earth

The first value means that we revere human well-being, fairness and justice as societal goals. The second value says that we value life and life-supporting systems in their own right and not merely for the support of human society.

These Swedish scientists argue that “human society is embedded in the ecosphere, and *the humans in the global human society are living beings among other life forms in this ecosphere.*” While not grounds for denying our human identity, such a rationale prompts us to recognize that “human identity is not sufficient, that standing alone... leads to a destructive anthropocentrism.”

In other words, if we insist on interpreting reality exclusively in terms of humankind as the central fact or final aim of the Universe, we assure collective hara-kiri. Bearing in mind “human citizenship in the society of [all] living beings, we must also value life as such and, consequently, those systems that support life.”<sup>180</sup>

Such elevated and benevolent values are not new. They are already firmly established in numerous international declarations and treaties and in some sub-cultures. What *is* new is their suggestion that we do more than pay lip service to them and actually put them into practice.

These values prompt us to honor them in our everyday lives, to express them with our checkbooks, and our actions. Personal growth and human development would take on whole new meanings stimulating, as Holmberg, *et al.*, declare: “a widespread cooperative effort between people in different societies all over the globe. Solidarity, justice, and freedom would become realistic ideals.”

Aligned with these two premier values, people would esteem Nature for its own sake “and not just as a source of raw materials and a processor of waste.” If we oriented our lives and societies around these two values, we would enthusiastically endeavor to organize society’s technological realm within as limited an area as efficiently possible, allowing ample leeway for natural systems in the ecosphere to continue undisturbed.

Notwithstanding that these two values are completely congruent with The Natural Step System Conditions and although they galvanize meaningful purpose for society’s aspirations, they do conflict with “economic ideas as they are commonly interpreted.”<sup>181</sup> To have a fair chance of installing a new life-sustaining culture, we must engage in meaningful dialogues about our values. Only then will we be able to contend with the profound yet positive changes that will ensue as we apply the principles of sustainability. If we fail to move toward sustainability we will have to contend with increasingly profound negative changes. Recall from Part I that we have two options: adapt or risk mass extinction.

**Cultural Creatives.** Fortunately, we are not starting out at square one. In the United States, the European Union, and other places around the world, one in every four adults has already discarded old values and limiting beliefs. Fifty million American adults, eighty to ninety million Europeans, and tens of millions elsewhere are on the cutting edge of creating a new culture.

Known as the Cultural Creatives, they share two disadvantages. First, Cultural Creatives generally feel that they are alone in their worldview and have no idea there are so many other people in the world who share their values and lifestyle. Indeed, most have no idea their value cluster has a name. Secondly, many of them feel frustrated because, in our race against time, they do not know what steps to take to usher in the new culture as soon as possible and most have never heard of the strategies featured in this book.

Cultural Creatives’ advantages far outweigh the obstacles, though, and are so numerous and heartening that the number of books, surveys, articles, and web sites applauding the emergence of this new value cluster has grown dramatically in the last few years. They already value human life and dignity. They care deeply about continuing life on Earth. Indeed, they honor the sustainable paradigm.

Nevertheless, to help us understand the cultural changes taking place in our midst, let us look more closely at the Cultural Creative phenomenon. In the United States over the past decade or so, we have witnessed a cultural *disunity*. It is somewhat more complex than the chaos of the sixties’ hawks and doves. A report by sociologist Paul H. Ray, published in *American Demographics*

in 1997, and his subsequent book, *The Cultural Creatives: How 50 Million People Are Changing the World*, co-authored with Sherry Anderson in 2000, indicate there are now three basic cultural groupings. Ray calls these cultural value clusters the Heartlanders, the Modernists, and the newest group—the Cultural Creatives.<sup>182</sup>

The *Heartlanders* represent the most traditional values, believing as they do in “a nostalgic image of small towns and strong churches that defines the Good Old American Ways. That image may owe as much to John Wayne and Jimmy Stewart movies as to any historical reality, but for them it is a powerful reminder of how things ought to be.”<sup>183</sup> Heartlanders represented about 56 million adults in the U.S. in 1994 when the values study was initiated.

In that year, about 88 million adults fit the *Modernists* category. This value cluster, writes Ray, “emerged 450 years ago as the governing worldview of the urban merchant classes and other creators of the modern economy. It defines modern politicians, military leaders, scientists, and intellectuals. Modernists place high value on personal success, consumerism, materialism, and technological rationality. It’s not too far off to say that Moderns see the world through the same filters as *Time* magazine.” The Modernist value cluster has the most destructive impact on the planet and living things, says Ray. The mantra “He who dies with the most toys, wins” best describes this cluster.

The *fastest growing* value cluster is that of the *Cultural Creatives*, earlier called the Trans-Modernists. Seeds for this worldview first germinated with Ralph Waldo Emerson, Henry David Thoreau, and the Transcendentalist movement in the 19<sup>th</sup> century. It began to grow as the West came into contact with Eastern philosophies, and blossomed during the 1960s, “as millions of young people joined ‘movements’ for human potential, civil rights, peace, jobs, social justice, ecology, and equal rights for women.” It has taken decades, yet more and more people are embracing the overarching core values from that period.

So, what do Cultural Creatives value? Their paramount value is ecological sustainability, says Ray. They also value foreign travel, eco-tourism, and exotic people and places. They value women’s issues (six out of ten American women are Cultural Creatives). Deeply concerned about violence and abuse of women and children, they value neighborhood and community restoration, alternative health care, and caring relationships, including family. Social responsibility is a big deal for them—they do *far* more volunteer work than Modernists and considerably more than Heartlanders. Spirituality, especially an inner life that honors personal growth and service to others, is a predominant value among the core group.

The values Cultural Creatives hold dear also inform their consumer choices. Their cars must be fuel efficient and as ecological as feasible. Their houses in established neighborhoods are no cookie cutter status display homes. They rank “builders down there with car dealers,” reports Ray, and value eclectic personalized décor, often with original art and walls of books.

“Aggressive consumers” (*and* producers) of cultural products, “they are more likely than average to be involved in the arts as amateurs or pros, to write books and articles, and to go to cultural meetings and workshops.” They read more books and magazines than most other people; they prefer radio to TV, choosing National Public Radio and classical music over television.

They value good stories and “demand a system-wide view of the ‘whole process’ of whatever they are reading, from cereal boxes to product descriptions to magazine articles. They want to know where a product came from, how it was made, who made it, and what will happen to it when they are done with it. They hate reading materials that put on a specialist’s blinders or refuse to deal with longer-term implications. For these reasons, they actively resent advertising on children’s TV programs,” Ray tells us.

Creatives research their big purchases and read labels. They are “technology moderates.” When it comes to food, they “like to talk about food before and after consuming it. They also like to cook with friends, eat out a lot, do gourmet and ethnic cooking, and try natural and health foods.” Authenticity is big for them, and they “lead the rebellion against things that are fake, imitation, or poorly made,” says Ray, shunning “high fashion in favor of high integrity.” Cultural Creatives value anything that is “holistic”—body, mind and spirit must be integrated, meaning “the core market for psychotherapy, alternative health care, and natural foods.” To Ray’s list, I would add coaching! Many Life Coaches and their clients share these values.

**Neither Left nor Right, but in Front.** Ray divides the Cultural Creatives into two subgroups: Core Cultural Creatives and Greens. The values described above fit the core group, who tend “to be leading-edge thinkers who are in the upper-middle class, with 46 percent in the top one-fourth of the U.S. household income distribution. Their male-to-female ratio is 33 to 67, or twice as many women as men.”

The Green Cultural Creatives represent a little more than half of the overall value cluster. They tend to function from more of a secular viewpoint, or from the perspective that Nature itself is sacred. Their interest in spirituality, psychology, and person-centered values is less intense than that of the core group. “Their male-to-female ratio is 47 to 53, close to the national adult ratio of 48 to 52. Greens are also more uniformly middle class.” Like the Core group,

they are inclined to rebuff hedonism, materialism, cynicism, scarcity, fear, and the intolerance and the non-ecological orientation of the far Right. They are more overtly political, yet neither right nor left, but rather in front, or future-focused.

Since 1988, I have saved a small green card about the size of a typical business card. On the front is a question, *Are You Green?* followed by a hint: *answers on back...* The back declares:

*If you believe in—*  
 Ecological Wisdom  
 Grassroots Democracy  
 Personal/Social Responsibility  
 Nonviolence  
 Decentralization  
 Community-Based Economics  
 Postpatriarchal Values  
 Respect for Diversity  
 Global Responsibility  
 Future Focus/Sustainability  
 —You're Green

These are the Ten Key Values of the U.S. Greens. Seeing them for the first time was a rare and exquisite experience for me. For me, the Green list of values was novel. It spoke to me. There was an instant connection between most of the items on the list and my own deep-seated, intentional purpose. I do not consider them to be matters I “believe in,” however. Rather they are values I honor and cherish.

The term “postpatriarchal values” proposes honoring and upholding the feminine (rather than the patriarch or the male rule of society). Honoring the best of both sexes, in my view, will turn out to be most beneficial for humanity. Overall, the similarities between these values and those of the Cultural Creative are quite remarkable.

Ray’s report stunned the advertising industry. It was almost comical how hastily marketers altered commercial messages to appeal more to the “simple life” of the Cultural Creative who, unbeknownst to the ad-makers at the time, did not hold shopping or TV commercials in high esteem. In business and technology, *Fast Company* began its meteoric rise as the commercial mouthpiece of these new values, running major stories on Dee Hock, Ray Anderson, Peter Senge, and other business leaders aligned with Cultural Creative values.

During the last decade as hundreds of thousands of average Modernists were abruptly downsized from mega-corporations, they found time for self-reflection and perhaps coaching. A good portion of them discovered their own values had often shifted toward the more humane Cultural Creative worldview.

Union members, small business owners, therapists, government workers, clerical staffers, terrorist victims, hurricane and tornado survivors, disgruntled HMO members, and countless others re-assessed or simplified their lives and livelihoods as we entered the third millennium. Many of them are Cultural Creatives and don't know it. They feel they do not fit in this modernist society of lemmings, not realizing millions of other Cultural Creatives are experiencing similar feelings all over the world. To find out if you and your friends are Cultural Creatives, plunge into the quiz, "Are You a Cultural Creative?" in Chapter 12.

What is most relevant for us at this unsustainable tight squeeze time is our present *shared* reality. Since everything is connected and it all matters, the mindset of "You create your own reality" no longer serves us well. The germane slogan now has to be "*We* co-create our shared reality." Upgrading, embracing and sharing life-giving values like those of the Cultural Creative will strengthen our collaboration and be central to shifting to a sustainable society as we realize together our shared vision of a sane, humane, and healthier future.<sup>184</sup>

When we co-create through our shared and evolved values a new life-supporting reality, we stimulate the evolution of more and more people's personal values. Values that reflect the highest part of who we are as a species align with the values of the emerging collective consciousness. These times of Nature's Ultimatum demand our highest and best, our most inspiring and life-sustaining values.

## Farewell Footprint

Your fundamental needs are not culturally determined. The *satisfiers* of those needs are. Fundamental human needs, says the Chilean mastermind behind the Needs and Satisfiers system Manfred Max-Neef, are "the same in all cultures and in all historical periods." What changes over time and within cultures is *how needs get satisfied* and people's *choices of those satisfiers*. How a cultural group satisfies its needs is a major factor in defining that culture. Cultural change, says Max-Neef, is "among other things, the consequence of dropping traditional satisfiers for the purpose of adopting new or different ones."

The crux of the needs system described above is that inadequately satisfied needs generate pathologies that affect us not just individually but most

particularly collectively. Today we face a dramatic increase in *collective pathologies* for which no treatments exist. It makes no sense to treat individuals who are, as Max-Neef says, “then expected to go back and live in a sick environment.” We must go beyond individual and group opportunities to meet their needs. We have to spur the whole system of Nature and Society, the collective patient, to get well.

Meanwhile, the Oxygen Mask Metaphor applies. You want to take care of yourself first so you can be of service to the whole system. Once your self-esteem is in good form and you have adopted sustainable satisfiers for your needs, you can upgrade and update your values. You and your friends or your coaching circle may discover values in common, especially if you develop in alignment with the Cultural Creatives, the fastest growing new value cluster, which is also on the cutting edge of transforming the world.

If you have felt isolated in your values, it can be a radical insight to find that other people care deeply about the same things you do. Others not only care—they “speak” your language, they share your inmost reverence for Nature, diversity, nonviolence, democracy, and present and future generations—and all of life. Indeed, you may also experience a big “aha” shift when you realize that decentralization and community-based economics are actually sustainable and proactive ways of organizing society.

Living with the two overarching values proposed by Holmberg, Robèrt, and Ericksson—human life and dignity, and continued life on Earth—has many immediate advantages. Energy costs will be less. Genuine community will have a fair chance of emerging. More opportunities will arise for people to unite in resolving issues. More jobs will emerge, even more than at the end of the Buggy Whip Age. More people get a chance to lead and express their gifts, talents, and potentials in public life. Best of all, the odds for life to continue will increase dramatically.

Light up your life-sustaining values in conversations and through good deeds. Let them radiate so that others feel inspired to join this exciting journey toward a sustainable future. It is ours to co-create through our basic human rights of self-determination, to which we now turn. Self-determination is a powerful prerogative for humanity to assert.

## CHAPTER 9

# Self-determination

## Choosing Your Cultural and Social Destiny

*I used my speech in Norway not only to thank the Nobel committee and sketch out a vision of a future South Africa that was just and equitable, but to pay tribute to my fellow laureate, Mr. F. W. de Klerk:*

*“He had the courage to admit that a terrible wrong had been done to our country and people through the imposition of the system of apartheid.*

*He had the foresight to understand and accept that all the people of South Africa must, through negotiations and as equal participants in the process, together determine what they want to make of their future.”*

—Nelson Mandela, *Long Walk to Freedom*  
Recipient, 1993 Nobel Peace Prize

*It's not just religious true believers who threaten our democracy. It's the true believers in the god of the market who would leave us to the ruthless amorality of unfettered corporate capitalism where even the law of the jungle breaks down. And they're counting on your patriotism to distract you from their plunder.*

*While you're standing at attention with your hand over your heart, pledging allegiance to the flag, they're picking your pocket.*

—Bill Moyers, 2002

### **Foothold**

Vital in becoming your best, personal growth nevertheless represents only a piece of the whole. You are also part of a social context that helps determine the cultural worldview from which your thoughts, words, deeds, purpose and inspiration flow. Under the influence of a self-absorbed culture, people may forget we are social animals. Taken to extremes, self-absorption can mutate, thwarting our well being and diminishing our capacity for self-determination.

Self-determination has several meanings. It usually means the freedom of people to determine, as equal participants, “what they want to make of their

future,” as Nelson Mandela told the Nobel Committee in 1993. Self-determination also embraces people’s *conscious choice* to control their common destiny, meaning *they* decide for themselves how they want to live their lives as a group. As established in the United Nations Charter, self-determination refers to the international human right of people newly freed from colonial rule to choose their own form of government.

To date no document grants people the right to determine the health of our planet’s life-support systems underpinning the very preconditions of our lives. This chapter aims to explain that void and inspire people who take part in the Coach Five Project to do something about it, from the ground up.

As a major strategy for achieving social justice, self-determination serves as a basis for coaching others to become both compassionate and conscious of the global industrial forces ravaging public health and economic security.

When we apply The Natural Step Framework in our own communities and begin to co-create diverse life-sustaining cultures, we will evolve. We will take self-determination beyond the chauvinistic Cold War era where it ran aground. We will take it to a level of enlightened consciousness that empowers people to enact a bold destiny in which people and our planet matter more than industrial policy and profits.

Embracing our values of human dignity and the perpetuation of diverse life on Earth, this evolved form of self-determination can become the central humanizing force of the future. The Natural Step vision of satisfying human needs worldwide and widespread specific coaching skills together with full-fledged self-determination can help us transform our relationships between and among people, Nature, technology, civil society, and corporate globalization.

Self-determination encourages conditions where people can become protagonists of their own futures. From “object-persons” (that is, hapless victims) beholden to bullies and bullying institutions, people with the liberty to take action can become “subject-persons” (strong, confident, co-creators of their own history). By embracing an evolved form of self-determination that honors people and our planet, we can unleash our potential and discover the highest our species has to offer.

Long before the word self-determination entered our language, this age-old desire inspired all human struggles against tyranny. Since ancient times, human beings have lived in social groups. Groups that lasted evolved hearty and unique cultures. Early people vigorously bucked outsiders’ attempts to force unfamiliar cultures on them.

During the European conquest of the Americas, indigenous people had little chance of protecting their cultures. Confronted with smallpox and

sophisticated military technology, survivors had limited choices. They either adapted to the dominant culture or faded away in wretched reservations. Tragically, few remnants of the First American cultures persist. Alas, three thousand of the world's six thousand cultures still existing a century ago have vanished—extermination tantamount to a holocaust or genocide.

In modern times, the longing for cultural freedom and independence—the aspiration for self-determination—has metamorphosed into a fundamental principle of international law. In fact, the idea of self-determination and the word itself appear in the *first* article of the Charter of the United Nations. In other international human rights instruments, self-determination shows up regularly. This legal right to self-determination means that all peoples of the world are free to pursue their economic, social and cultural development without outside interference. Moreover, all citizens, no matter their race, descent, national or ethnic origins, have the right to take part at any level of their nation's public affairs. Theoretically.

International law also grants racial, ethnic, tribal, religious, or linguistic minorities the right to profess and practice their own religion or to use their own language. The right to self-determination further implies that all peoples have the right to determine their political status and their place in the international community.

In real life, a vast gap immediately appears between the way these rights manifest in the world and what they express on paper. For billions of people, these rights barely exist. Yet despite steady violations, the right of self-determination remains a powerful and precious prerogative for humanity to champion.

Nurturing the spirit of self-determination will help put us on the life-sustaining path more quickly. In this chapter we will explore self-determination from several angles in order for you to internalize that spirit and its power. We co-create from the personal and the collaborative, from the inside and the outside, from the intentional and the cultural, from the social and the behavioral, and from novel combinations of each of these. We also examine oppression, intention and choice, consciousness, reading the world, economic tyranny, corporate-state domination, the global justice movement, and the politics of sustainability. Finally, you will find an exercise for developing a workshop on satisfying human needs in your corner of the world.

Nature underpins the entire process, from our cells' inability to metabolize toxic substances to our complete reliance on the sun and photosynthesis to maintain our existence. When global industrial forces threaten the very preconditions of our lives, our right to determine together our common future

warrants our focused attention. Let us probe more deeply and pursue how together we can generate a social transformation.

## Finer Focus

The attraction of self-determination is simple. It is indeed healthier and fairer that people determine their own destinies. When others—dominators of any ilk—determine our destiny for us, they anoint themselves *chargés d'affaires* over our lives and we cannot live in safety and dignity.

As *individuals*, we have no choice about our birthplace or birthstone. We cannot determine who our biological parents are. We have no control over being born the first child in a privileged family of the dominant culture or the fifth child of a political or environmental refugee. We are born with individual features and a unique set of genes into a culture with ingrained prejudices and into a society defined by its economy and technology. Despite these foreordained conditions, we *do* have a choice about our future.

As part of a *community of individuals*, we have strength and more safety in numbers. As a people, *together* we can determine how we want to live our lives. *Together* we can make the spirit of self-determination visible. We can shape a life-sustaining culture. We can devise a sustainable and self-reliant economy. Most notably, we can co-create the society we want. Let us reclaim our universal rights to choose our way of life and our capacity to live it.

## Cycle of Oppression

Before people attain the capacity to assert their rights of self-determination, they generally go through a cycle of oppression from which they then have to escape. In advanced industrial societies where both parents often work and grandparents may live far away, the role models that socialize children tend to be playmates, siblings, nannies, daycare workers, and television celebrities. Reinforced by the media and institutions, children “believe” their version of reality is so for everyone.

Adolescents discover “outside” dangers and start protecting their inner feelings through “people pleasing” strategies. People pleasers build shells around themselves and disconnect from their own truth—they lose any inner voice they once had. Anesthetized, they “sleep walk” through life. Depending on how oppressed they are, people may remain in this state all the days of their lives.

Many adults lose all sense of inner peace, a plight J. Jay Scott calls “internalized oppression,” which results from “inaccurate or hurtful information we

receive from others about ourselves which we internalize or take responsibility. We assume it to be true. This affects our attitudes and feelings about ourselves and our behaviors.”<sup>185</sup>

“Externalized oppression” occurs when certain social forces catapult a person into “acting out.” A dominator role shows up as bullying, exploitation, cruelty, ridicule, manipulation, dishonesty, mistreatment, or terrorism. Alternatively, one may acquiesce and act out a dehumanizing victim role.

Acting out generally leads to maintaining the status quo. People tend to “protect and justify” privileges, inequalities, and unjust treatment. We strive not to “make waves.” We are “grateful.” We don’t question authority, the establishment, beliefs, stereotypes, our scripts, or the stories we tell ourselves.

Yet, by not questioning, by not speaking truth to power, by not getting involved, little genuine growth and change occur. Inaction, like action, has consequences. Regrettably, people perpetuate their myths and oppressive attitudes in their offspring, and the cycle of oppression continues, generation after generation.

The events of September 11<sup>th</sup> and subsequent reactions made this point especially poignant. In an interview during the aftermath, author of *The Chalice and the Blade* Riane Eisler spelled out the context and articulated the way terror and hate continue from one generation to the next. Beneath classifications of “religious versus secular, tribal versus industrial, right versus left, capitalist versus communist,” she said, there is a continuum of two opposite poles. The underlying way we structure relations ranges between the dominator model on the “fear-and-force-based and disempowering” end and what she calls the partnership or respect model on the other end.<sup>186</sup>

Eisler’s partnership model values “nurturing and empowering” attitudes in both male and female, which include natural human qualities like caregiving, empathy and nonviolence. The U.S., sadly, is split between partnership and domination. “We make a mistake,” she says “to deal with dictatorships to protect our oil interests. We’re safer in the long run to join with pro-democratic forces in the region” and to work with those in the Muslim world who support “religious freedom, the human rights of women and children, family planning, real democracy, not just a vote.”

To end the cycle of terror and violence, Eisler suggests that we address “foundational matters,” which include in this case backing “an international campaign involving heads of state and clergy to end intimate violence” and directing “economic aid and training to the grassroots.” We must take “health-care, nutrition and educational programs directly to women and children,” she says, “and make their implementation a keystone of globalization.”

J. Jay Scott says the cycle of oppression can be broken, too. People can break out of this vicious circle, he maintains, “through dissonance, contradictions, and confrontation” where they question society’s “norms, values, behaviors, roles, rules.” Such questioning moves us out of our comfort zones where we can *unlearn* stereotypical thinking and limiting beliefs. Becoming responsible for “Self and Systemic Change,” as Scott describes it, we can develop more awareness “of our roles in the perpetuation of oppression, take a stand in our lives, consciously work toward change.” Inspired by compassion and empowered with a sense of inner peace, we can more readily take enlightened action as well, “educating ourselves and others, celebrating diversity, building communities and alliances, redefining who we are in regards to race/ethnicity, gender, age, sexual orientation, spirituality, class, physical and mental abilities.”<sup>187</sup>

To Scott’s excellent list, I would add other relevant spheres of action where the cycle of oppression crushes humanity’s bright potential. Let us take a self-determined stand in our communities for *boosting* humanity’s prospects—a stand for ending social and economic injustice, ecological devastation, biotechnology perils, and monopolistic power.

When we break the cycle of oppression in these arenas, we also help dissolve the roots of terrorism. We help thwart environmental racism, exploitation of children and women, hunger, the tragedy of environmental and political refugees, and institutionalized violence. At the same time we can begin to restore justice and meet human needs worldwide, a vital part of The Natural Step’s Framework for building a sustainable future.

### **Choice, Intention, and Consciousness**

Applying the principle of self-determination is a choice to live together from the highest and best of who we are. Choice takes on an expanded meaning for us, leading all the way to political and economic reconstruction. Indeed, our future lies in our intentions and choices—our intentions for the planet and our children and our choices to be “leaderful” together in co-creating a new life-sustaining culture. This may sound daunting, yet common everyday caring people can become self-determined citizens who accomplish uncommon outcomes.

The road to self-determination may display a few potholes. For example, do you find yourself spending too much time putting out “fires?” Are you juggling one short-term demand after another? If so, you are not alone. Lots of people cast about when they are not achieving their goals. They often flagellate themselves or blame others. If this sounds familiar, then it is possible that distraction—or worse, the so-called Gremlin—has its grip on you. Richard Carson’s *Taming Your Gremlin* shows you how to get rid of negative self-talk

and *choose* to enjoy relating to yourself and others.<sup>188</sup>

In any event, you benefit from examining your intentions and your choices. The choices you make, in fact, say a great deal about your bedrock intention. Do you come from a place of regret, rage, resentment, or revenge? Is your consciousness tilted toward finding fault rather than the silver lining or feeling guilt, embarrassment, sorrow, or shame? The highest and best of who you are has the power to choose otherwise. You may have given away your power. With the help of a coach or a trusted friend, reclaim it and choose a different, less fear-based orientation.

In *The Path of Least Resistance*, Robert Fritz shows how the creative orientation attracts “effective choice,” while the reactive-responsive orientation avoids it.<sup>189</sup> When you determine that you, yourself, will be the dominant creative force in your own life, you focus on and attract the outcomes you most want. Yet, when you pay attention to distractions, you become distracted. When you attend to how bitter someone makes you feel, you become embittered. What you focus on you achieve. What you attend to, you become.

When short-term demands divert you, you will have a more difficult time focusing on and realizing a longer-term vision. Creative geniuses throughout history achieved their greatness in part through their concentrated focus. They chose to stay attuned to their longer-term vision—the outcomes they really wanted to create in their lives. They took meaningful and enlightened action toward the outcomes that were most important to them. The great creators of history, Fritz tells us, made fundamental choices to realize their visions, independent of distractions and short-term demands and despite discomfort, inconvenience, and external circumstances.

Similarly, by making effective choices we everyday caring people can become strong, confident co-creators of our futures. Rather than “choosing” distractions, we can choose to enact our passion, our values, and a compelling vision that lights us up. Imagine the remarkable outcome if half of the readers of this book, regardless of circumstances, chose to spend two to three hours a week for six months co-creating with others a life-sustaining future!

Make the conscious choice to become the creative force in your own life, Fritz urges, and be true to what is highest in yourself.<sup>190</sup> This is self-determination at the intentional level of the individual, made at your core. Even in the most difficult times, this kind of choice will support your dreams and your highest goals. Read *The Path of Least Resistance*. It may transform your life as it has countless others’.

**Consciousness.** When we break through the shell disconnecting us from our own truth, we discover our inner consciousness. Drawn to creating a

harmony between our inner and outer existence, we begin to question the values and beliefs that have ruled our lives and exploited our life energy. We experiment with new values and start to orient our lives around the values that best suit our authentic selves. We then discern our egoistic focus and how external pressures from peers and the mainstream culture have undermined our past choices.

Most of us cling to mainstream values, which define the “world” in simple sound bytes. With every advertisement, Madison Avenue reinforces hollow values. Cultural tyranny (what seems culturally acceptable yet smothers our potential, individually or collectively) and economic tyranny (what appears to sustain the economy yet is unsustainable in the longer view) have a stranglehold on our perceptions of the world. Our goals and dreams tend to align with and stop at this “reality,” making the transition to the next phase tough. We justify conformity since it is easier than acting from the heart.

To reach the self-determination phase, we have to make the choice to become inner-directed (heart prompted) and other-focused (care unfolding) rather than other-directed (externally prompted) and inner-focused (ego driven). We continue to grow personally but our care quotient will expand. We will learn how to “read the world” and care about more than our previous narrowly focused existence.

Creating a new culture involves much more than widespread self-understanding and personal transformation. To be sure, becoming more deeply aware and cultivating our inner consciousness to transcend the ego and abandon the robotic consumerist mentality represent fundamental parts of the whole journey. Yet, beyond self-questioning and personal growth arise the fertile fields of questioning the social and cultural structures and belief systems that play havoc with the web of life and civil harmony.

Our process requires, as we have noted, collaborative spunk, co-creation, and a higher social intelligence to reach the deeper insights and actions needed to free ourselves from the tight squeeze that imperils humanity. More must “happen in terms of collaboration and a shared vision of helping humanity,” maintains Georg Feuerstein, long-time disseminator of Eastern ways of wisdom in the West and a champion of the evolution of consciousness.

Another champion for the evolution of consciousness and one of the foremost philosophers of our time, Ken Wilber, provides a helpful model for integrating our complex reality. He also helps us see that widespread personal transformation does not a social transformation make. Moreover, while Wilber does not speak specifically to the notion of self-determination, he advocates a “sustained intentionality” of universal and integral practice, which in its

universal caring conception is elegantly compatible with self-determination strategies.

Wilber sees people moving through three stages. He calls these stages *ego-centric*, *ethnocentric* (or sociocentric), and *worldcentric* (the global stage). He sees the global stage as the springboard for entering the higher spiritual domain. As we move through these stages, we extend our consciousness—our circles of caring and justice—to deeper and wider spheres and to more and more people. We take care of the self first. Next, we care for others (while we continue self-care). Then we move to universal caring (continuing self- and other-caring). At length, we reach what Wilber calls the “universal union” or the spiritual domain,

Yet, the whole of reality is not that simple. Wilber’s model affords a useful backdrop for helping us understand self-determination in its many dimensions and its vital collaborative role in co-creating a sustainable future for all. (See Figure 9-1.) Self-determination for all requires an evolved state of collective consciousness.

The upper right square shows individual *behavioral* influences, which include biological tendencies, such as observable behaviors in the brain. Distinct from the material organ we call the brain is the mind, or consciousness of the individual, the *intentional* upper left quadrant. Covering collective reality, the bottom left square embraces *cultural* phenomena; the bottom right comprises *social* phenomena.

Our thoughts and intentions originate, Wilber says, in a vast “*cultural background* that gives texture and meaning and context” to our thoughts.<sup>191</sup> Our worldviews arise from culture. Yet all cultural factors “are strongly anchored

	INTERIOR	EXTERIOR
INDIVIDUAL	I <i>intentional</i>	it <i>behavioral</i>
COLLECTIVE	<i>cultural</i> We	<i>social</i> it

Figure 9-1. One view of Ken Wilber’s 4-box model of reality.

in the material components of the society,” like its technologies, production, institutions, written codes, architecture, economic base, and geopolitical locations. These form the footing of the actual *social system*, depicted in the lower right square of the model. They are the components we have to tweak to launch sustainable societies.

In Part I of this book, we established that everything is connected. We are all part of a larger whole. Ripples from our inner life affect our outer life *and* the inner and outer lives of others and the world. In the self-determined life, we are all connected—all one in the web of life—or as a prophet of doom put it, the web of death. Our inner truth and the outer truth of reality co-invent each other and unite us all in the complex dance of life at the edge of chaos.

All of life engages “in a seamless interchange with that which is ‘outside’ us, always helping to co-create the world for better or worse—exactly as the world is helping to co-create us,” teaches Quaker social change practitioner Parker J. Palmer. He finds this simple fact “not to be widely understood in a culture that insists on separating the ‘personal’ from the ‘professional.’”<sup>192</sup> To teacher complaints that they can’t take personal values into the classroom, he replies “Who are you going to send in there then?”

Let us give voice to—not mask—our species’ highest values. In the spirit of sustainability and self-determination, let us consciously choose to honor human life and dignity and to revere all life and its perpetuation. The alternative is sleepwalking or as Palmer puts it “co-creating in ways that are dangerously unconscious and sometimes death-dealing.... We have the capacity to co-create death or co-create life.”<sup>193</sup>

Self-determination engages us to choose life, consciousness, awareness, justice, equity, and full human development. It challenges us to express the truth. Self-determination is a requirement for meeting human needs worldwide. It helps us remove the socio-political blinders that imperil humanity’s future. Self-determination allows us to “read the world” and transform it.

### Reading the World

The injustice of semi-literacy is an old phenomenon. For centuries, knowing how to read, write, and do arithmetic enabled people to live more fully satisfying lives. Literacy often meant earning power and upward social mobility. During the nineteenth century after certain oppressed groups recognized the power of the word, the right to read became a cornerstone of educational policy.

This was a determined shift. Without literacy, people could not easily raise their economic and social expectations. Yet, ironically, without expectations,

they possessed no incentive to learn to read, as the distinguished historian Eugene Genovese recounts in *Roll, Jordan, Roll; the World the Slaves Made*. “The obstacles did not all concern fatigue, limited cultural horizons, a lack of books and paper or of an available tutor. Beyond all these lurked another.” When a well-educated southern woman suggested that the son of a literate plantation slave ask his father to teach him to read, Genovese reports the young man replied poignantly: “Missus, what for me learn to read? Me have no prospect.”<sup>194</sup>

Today, a century and a half later, without literacy in human development, the social sciences, science, and especially ecology, *we*—as a species—have no prospect. A good grasp of the humanities may not be required for sustainability, yet it rounds out and adds joy to life. We seem to have cycled around again to semi-literacy, albeit a semi-literacy of a different kind: a scanty awareness of how the natural world works and a detached relationship to the social world that resembles little more than a “charade of normalcy” or sleepwalking through a life ruled by propaganda.

Beyond the right to *read the word* is the right to *read the world*, as Brazilian educator Paulo Freire unceasingly explained during his long career as an education scholar *par excellence*. After the United States government colluded with the Brazilian military to oust the democratically favored president, João Goulart, the military junta exiled Freire.<sup>195</sup> The dictatorship viewed Freire (or anyone else who empowered ordinary people to wake up to their real life situations) as far too disruptive of their plans.

After all, Freire’s mission of liberating peasants from illiteracy would awaken them to their oppressed state. Indeed, when I lived in Brazil, I observed first hand the elite’s fear of the potential “social disorder” empowered literate masses might muster. There appears to be a motive behind Brazil’s national motto, Order and Progress. Keep the masses in a state of docile and obedient order so the elite can opulently progress.

Because Freire’s method had peasants reading (both the word and the world), in some cases, in less than *thirty hours*, the elite stratum of society was skittish. While his banishment may have delayed the “conscientization” of the masses in Brazil by a decade or so, elsewhere a conscious and collective resolve for determining how people chose to live together on this planet was already under way, especially among peoples long tyrannized by the colonial system. As we have seen, the international community dubbed this new consciousness “self-determination.”

It is in the spirit of the universal right of peoples to self-determination that participants in the Coach Five Project will coach each other to “read the world” and then apply The Natural Step principles and tools in ways suitable

to their own unique communities. This way at the local level, everyday caring people will satisfy human needs and safeguard human rights and the natural systems supporting all life. When this consciousness of self-determination awakens in enough people and spreads, people in thousands of communities across the planet will choose a life-giving path, and together we will boost the odds for a healthy and prosperous future for all.

### Self-determination vs. Suffering

Without enough participation, though, the odds increase that a new kind of colonialism will usher in a tragedy the scope of which will likely stagger even the imaginations of horror script writers. Openly violating the sovereignty of peoples and communities, global powers already have undertaken extensive self-serving ploys lavish with greed, corruption, cruelty and planetary pillage.

Among these forces are organizations with benign-sounding names familiar to most of us: the World Bank, the International Monetary Fund, and the World Trade Organization. There are others.<sup>196</sup> A few reality checks will show us what has sparked the new global justice movement and its recent international waves of demonstrations.

**The World Bank.** The first reality check involves the World Bank, which alleges its reason for being is “environmentally sustainable poverty alleviation.” Yet the Bank’s own 1999 Annual Review of Development Effectiveness states that “poverty trends have worsened.” The number of poor people living on less than US \$1 a day rose by 17 million from 1987 to 1997. Excluding China, there are 100 million *more* poor people in developing countries than a decade ago.” [my italics] Not only that, “the Bank’s own internal audits reveal an astonishing 51 per cent failure rate to achieve sustainable results in fiscal years (FY) 1998-99, a performance that has not changed appreciably in the last decade,” writes Bruce Rich regarding the failure of reform at the World Bank. The results are worse in the poorest countries.<sup>197</sup>

Disregarding fiduciary, social, and environmental accountability, the World Bank has made hundreds of billions of dollars of bad loans to multinational corporations and governments. Since the money used to finance the Bank’s activities comes from public funds (and usually ends up in large New York banks), you may be interested in knowing that the Bank’s own internal investigations repeatedly found massive violations. One reason, observes Rich, is the lack of accountability of the members of the Bank’s Executive Board, who “lobby heavily not to have the performance of their governments scrutinized.”

Apparently, the Board routinely squelches investigations when allegations of wrongdoing arise concerning Board members’ countries. Several projects

illustrate this practice. After the Board postponed investigating the Rondonia Natural Resources Management Project for months, it was too late to make up for the illegal deforestation in Brazil's "protected" areas or to compensate for the scarcely implemented indigenous people's health plan.

The Itaparica Dam Resettlement Project in Brazil, the single most expensive resettlement scheme in Bank history, represents massive mismanagement yet again. Almost all of the \$63,000 set aside *per family* "disappeared in corruption," says Rich. The World Commission on Dams (WCD), sponsored by the Bank, reports that the Itaparica project alone displaced more than 40,000 people. Assuming family size to be five, the total set-asides alone amounted to more than US\$500 million (US\$63,000 x 8,000 families).

The WCD final report concluded that "large dams" built since the 1960s "have forced 40-80 million people from their homes and lands," bringing about "extreme economic hardship, community disintegration, and an increase in mental and physical health problems. Indigenous, tribal, and peasant communities have been particularly hard hit. People living downstream from dams have also suffered from increased disease and the loss of natural resources upon which their livelihoods depended." Enormous environmental damage has resulted: "the extinction of many fish and other aquatic species, huge losses of forest, wetland and farmland; and the benefits of large dams have largely gone to the already well-off while poorer sectors of society have borne the costs."<sup>198</sup>

In Indonesia over the past thirty years, "shoddy accounting practices by the World Bank had allowed corrupt Indonesian officials to steal as much as 30 per cent of Bank loans"—more than a whopping \$8 billion. Yet the Bank continued to make loans to Indonesia even after the Bank knew of this theft, because it began to believe its own lies, that Indonesia was one of its great success stories. Contradicting the Bank's illusions, an internal report concluded that the Bank's "reluctance to offend a major borrower, a refusal to address corruption, and a dysfunctional internal Bank culture that punishes staff for identifying problems that could slow down lending... all contributed to the ... 'myth of the Indonesian miracle.'"<sup>199</sup>

**The International Monetary Fund.** The track record of the International Monetary Fund may be worse. "What is the difference between Tony Soprano and the International Monetary Fund?" asked Conn Hallinan, provost at the University of California, Santa Cruz, in a January 2002 *San Francisco Examiner* article. "Nothing," he answers, "except that Tony and his Mafia pals, who extort and impoverish a handful of people in New Jersey, are a television creation. The IMF, on the other hand, does this to hundreds of millions in the real world."<sup>200</sup> That includes the people of Russia, which the IMF helped bankrupt,

maintains Hallinan, the countries the IMF left devastated in the presence of the 1997 Asian bank disaster, and Argentina.

Do cry for me, Argentina, definitely applies in this case. In August 2002, *The Washington Post* carried a front-page story entitled, “Despair in Once-Proud Argentina, After Economic Collapse, Deep Poverty Makes Dignity a Casualty.” Dignity is not the only casualty. More than 7 million, mostly middle-class Argentines lost their life savings in the banks in Argentina after the December 2001 economic collapse, “despite names such as Citibank and BankBoston,” wrote the *Post’s* foreign service correspondent. Inflation and devaluation of the peso have tripled basic food items. Unemployment is higher than during the Great Depression and infants and children once well fed are starving.<sup>201</sup>

Argentina’s present crisis started in the early nineties under Bush, Sr., when the IMF made Argentina a loan saddled with contingencies galore. In a blitz, privatization, “free flow of capital” and cheap foreign imports along with other IMF policies threw the third largest Latin American economy into a melt-down. Argentina’s industrial base dissolved as factories shut down, debt exploded, and unemployment mushroomed. Foreign corporations whisked profits out of the country and “opened the gates for ‘vulture funds,’ which bought up the debt to make a killing on the interest rates,” says Hallinan, sometimes as much as an eighty-percent return. “A French company purchased the country’s water system and hiked rates by 400 percent.”<sup>202</sup>

If you live in one of the hundred or so countries where the IMF has imposed its harsh and flawed economic reforms, you know about SAPs. SAPs stands for “structural adjustment programs,” a fitting handle because SAPs literally sap the life energy out of people and communities. The SAPs reforms are standardized “free market” measures—one-size-fits-all—the IMF forces on countries that are so highly in debt they cannot repay the soaring interest on their debt, let alone the principal.

SAPs have terrorized people around the world. The reforms include privatizing public schools, utilities, social safety nets, and other government services; slashing budgets; and often pegging local currencies to the U.S. dollar. *Countries caught in the SAP vise represent four billion people or two-thirds of the world’s population.* All this to favor global corporations and their investors, a minute fraction of the world’s population, who often fail to benefit anyway, as the glaring examples of Enron and Global Crossing have shown.

Instead of producing healthy societies and robust economies, SAPs “have brought ruin to national economies, cut-backs in schools and hospitals, increased... hunger, and environmental harm.” Indeed, SAPs have thrown

“hundreds of millions of people deeper into poverty,” lament John Cavanagh, Carol Welch and Simon Retallack, in a special issue of *The Ecologist*.<sup>203</sup>

Meanwhile, the IMF stuffs “the coffers of financial organizations and banks,” says Hallinan. Indeed, it “avoids congressional oversight,” he says, because it is not a true *international* entity, but rather a “handy fiction.” The United States and its allies make all the decisions: “The Netherlands, for instance, has more voting power than China and India.”

By late summer 2001, Argentina’s production had dropped off the charts. In early 2002, after weeks of riots, the deepening social and economic urgency in Argentina led to a crisis that saw the president resign, followed shortly thereafter by the resignations of several successors. Argentina had asked the Bush administration for aid, “but like Tony Soprano and the goodfellas,” Hallinan explains, “the administration doesn’t let friendship and alliances get in the way of business.”<sup>204</sup>

The Argentines, like other people oppressed by the IMF, resisted the SAPs in a variety of ways. Not only did they demonstrate *against* the SAPs, they also demonstrated *for* more equality between rich and poor nations, a voice in their own destiny, self-determination, a fairer economic system. Fearing new SAP burdens would provoke more suffering, the Argentines were simply *for* a fairer international trading arrangement that took into account the concerns of all. They also created “barter coupons,” used widely like money.

More than a year before the Argentine crisis, Cavanagh and his colleagues wrote that all over the world “IMF’s purely market-based approach has contributed to the fact that *at least one billion adults—more than 30 per cent of the global workforce—*are unemployed or seriously underemployed today” [my italics]. Imagine how this affects their children.

IMF is a perfect example of linear thinking and its disregard for how everything is connected. Downstream in IMF controlled countries, we find enormous suffering. Small businesses go out of business and lay off their workers as government does the same to comply with SAPs, while children drop out of school unable to pay the new private tuition. Health deteriorates because healthcare and food security have vanished. Upstream, the major bank vaults are stuffed with money gained at the cost of a billion livelihoods.

People fortunate enough to have jobs find the minimum wage has dropped in some cases almost as low as twenty percent of their minimum wage in 1971. More women die in childbirth. More people contract AIDS. Shocking numbers of “teachers” are professionally unqualified. Illiteracy mushrooms. Farmers go bankrupt. People go hungry and far too many die. Natural resources and safe drinking water disappear. This is only a sketch of the legacy of the IMF. The full account is more jarring.<sup>205</sup>

The bright side of this shameful tale is that the highly respected Joseph E. Stiglitz, 2001 Nobel Laureate in Economic Science, has exposed the “market fundamentalism” of the IMF, asserting that globalization is flawed. That markets alone will achieve balance between supply and demand and thereby further growth and development is a defective belief, he contends. A former chief economist at the World Bank and top economic Clinton administration adviser, Stiglitz says that global business-as-usual “will not only not succeed in promoting development but will continue to create poverty and instability.”

**The World Trade Organization.** The WTO is the infant sibling—*le Enfant Terrible*—of the World Bank and the IMF. Professor Stiglitz in his new book, *Globalization and Its Discontents*, calls the WTO’s discrimination against the developing world hypocrisy since its unfair trade rules extol trade liberalization for the richer nations but not for poorer markets.<sup>206</sup>

After the birth of the WTO in 1995, the President of the Group of 77 and the former Colombian Ambassador to the General Agreement on Tariffs and Trade Jose Louis Jamarillo declared they had created a monster. “An institutional trinity which will dominate all economic relations across the world in the interests of the strongest.”

He was not far off the mark. In league with corporate interests in the United States and a hand full of other industrialized countries, all three institutions—the World Bank, the IMF, and the WTO—now call the shots. Squeezed by this system, the interests of our planet and her people, especially the poor, drop by the wayside. The questions remain, Which interests will prevail in the long term? Which interests *are* stronger?

### Democracy vs. Corporate Rule

The massive demonstrations beginning in Seattle in late 1999 and continuing later in Davos, Switzerland and elsewhere put corporate interests on notice. The protesters’ message went something like this: Do not be too sure about whose interests are stronger. We stakeholders of the Earth total more than six billion people—we have the leverage, we have the numbers on our side, and there is always Nature’s Ultimatum breathing down our necks. We stakeholders, ourselves, have the right to determine what is sold in our own marketplaces, what our education, public health, and economic policies are, and who shapes our social and cultural destiny.<sup>207</sup>

Corporate interests definitely took notice. Something had to be done about the protesters—they must be demoralized if not stopped altogether. After all, what could possibly matter more than sacrosanct Global Financial Results? Self-determination and democracy be damned. Endless linear economic

expansion demands dominance over the wisdom and consent of people, communities and the natural systems that support us all.

**Neo-fascism and State Terrorism.** Such arrogance is one reason the contest between democracy and corporate rule showed its dark side in July 2001 in Genoa, Italy, where the leaders of eight industrialized countries convened for the G-8 Summit. To the dismay of tens of thousands of peaceful demonstrators from across the world protesting the harmful effects of globalization, a few hundred militant anarchists and provocateurs in the streets fomented creative trouble-making and violence. Italian military police shot one young protester to death and threatened, even injured, nonviolent demonstrators. You probably caught pieces of this violence on television.<sup>208</sup>

What you did not see on the news was brutal and secret state-sponsored police terror instigated against nonviolent demonstrators at the end of the summit on July 21<sup>st</sup>. Demonstrators unable to arrange their departures that Saturday evening spent the night in the Armando Diaz School. Around midnight police threats turned to terror. Unlike the terrorist attacks of September 11, news accounts of the July 21-22 attacks on the Italian school guests (including American victims) were cryptic and disturbingly slow reaching the U. S. public.

*The Wall Street Journal* in a front page article more than two weeks later reported that “some 70 members of an Italian SWAT team smashed through the front door wielding truncheons and shields, their faces covered with blue and red handkerchiefs.” The head of the Italian national police Central Operative Services Francesco Gratteri stood in the school courtyard as the paramilitary police stormed in.<sup>209</sup>

Other reports told of atrocities as the police proceeded to bash skulls and kneecaps of defenseless sleeping young people and to beat unconscious *pacifistas* in submissive positions. For hours during the beatings people throughout the neighborhood heard screams coming from the school and then witnesses saw medical personnel carry the bloodied and injured on stretchers to ambulance after ambulance. When the assault was over the press found blood splattered walls, pools of blood, and human teeth scattered across the floors of the Diaz School.<sup>210</sup>

About sixty of the ninety or so sleeping at the school ended up at hospitals. Doctors told reporters that some of the young people would have died had they not been brought in for treatment. Even so, one young man suffered brain injuries so severe he may never recover. Those treated and released were taken to interrogation centers in police barracks where they joined other students who had not been taken to hospitals although some of their injuries (i.e., broken bones) needed medical attention. Altogether, there were seventy-eight detainees.<sup>211</sup>

At this point, for many the terror turned to torture. Guards forced women and men to strip for “body inspection.” Numerous victims reported agonizing hours of coerced standing in cold cells with legs apart and arms stretched over their heads without being able to rest, use the toilet or drink or eat anything. Reportedly, those who fainted or were unable to remain standing got more beatings. People with broken arms and legs were not exempt.

Hours later when the young prisoners were finally allowed to rest, they were put in cold detention cells where they slept, *The Wall Street Journal* reported, “on a concrete floor and had just three blankets for 30 or so people.” Several of the detainees told of not being offered food or drink for more than a day. Others said the interrogators of the national police VI Mobile Division deliberately intimidated them with ongoing threats and loud praises for Mussolini (whose picture adorned some walls).<sup>212</sup>

On August 7 nearly fifty detainees were still held in Italian prisons. There were allegations that police had sexually assaulted some female protesters. About this time we learned where seventy members of the elite Italian police unit in question were trained to use the billy club: in Los Angeles by sheriffs. Apparently, a larger number engaged in training with the Los Angeles Police Department. Their truncheons, in fact, were American-made batons.<sup>213</sup>

Accounts by numerous victims as well as doctors, hospital personnel, local officials and neighborhood witnesses prompted the Italian judiciary to initiate an investigation around the use of cruel and inhumane brutality during the school raid and the blatant abrogation of basic human and civil rights during detention. The courts found that the overwhelming number of arrests were illegitimate. The Italian Parliament launched an inquiry. The Interior Minister fired a token number of police officials.

The government led by Prime Minister Silvio Berlusconi, one of the wealthiest moguls in Europe, swirled in crisis, first denying police brutality, then siding with the police version, which claimed the school was a refuge for violent anarchists and all arrested had been part of this extreme fringe group.

*The Wall Street Journal* reported that Berlusconi initially said the raid “proved collusion” between the pacifist demonstrators and the militants. Under pressure from abroad, especially from the Germans who pressed for a full accounting, the government eventually admitted “something may have gone wrong.” Even national police chief Gratteri acknowledged that “evidently something abnormal happened there, which is why there is an investigation.”<sup>214</sup>

I have detailed and documented the Diaz school misfortune because for years I have felt that if there is another “world war,” it will be more like a swarm of civil wars reflecting the global and local struggle between forces of democracy

and the corporate elite. Some have even argued that the Bush administration's war on terrorism boils down to such a struggle. Whether or not this is so, the Diaz School story is far less complex and makes a simple yet strong case for making self-determination, democracy and human rights central organizing principles for our times.

We can learn much from this real life story. As a template of sorts, it prepares us for similar surprise events in the future. It empowers us to ask "mindful questions" about developments as they unfold, helping us to detect comparable repressive efforts that aim to suppress freedom. It opens us up to what is possible and dispels our past limiting beliefs (i.e., "this could never happen in the civilized world!"). It challenges our visions to be bolder, clearer, and more democratic. Alas, the Diaz School story urges us to take a stand for self-determination.

**The Global Justice Movement's Future.** Does this story also teach us to be fearful? Only if you let it. This was undoubtedly the intention of the Italian state-sponsored terror in the first place. Berlusconi, his national police, and possibly other G-8 leaders may have preferred to bomb the protesters into the Stone Age but they settled for terrorizing them into oblivion. Did they succeed?

Absolutely not. The injustices of the global economic system batter the masses and nonstop propaganda misleads them. They have little clue how grave the situation is and what they can do about it. Nevertheless, the global justice movement remains alive and well. Even after September 11.

A December 2001 weekly column, *Focus on the Corporation*, recapped the activities for global justice in the wake of the terrorist attacks on the World Trade Center:

- During the Qatar gathering of the World Trade Organization ministers in November, advocates for global justice took to the world's streets demanding the abolition of the WTO or at least a cutback in its power. Thousands gathered in numerous cities in Australia, Austria, Bangladesh, Bolivia, Brazil, Canada (in twelve cities), the Czech Republic, Denmark, Finland, France, Germany (in more than twenty-four towns), Honduras, Hong Kong, India, Indonesia, Italy, Japan, Lebanon, Malaysia, the Netherlands, New Zealand, Nigeria, Norway, the Philippines, Russia, Slovakia, South Korea, Spain, Sweden, Switzerland, Thailand, Tunisia, Turkey, the UK, and the United States (in eight cities).
- More than two hundred separate direct actions at Staples stores across the United States on November 13 called for the office supply chain to

switch to recycled paper and stop selling paper produced from endangered forests.

- Thousands organized rapidly and hit the streets in Ottawa when, with little notice, the International Monetary Fund and the World Bank rescheduled their meeting (originally planned for Washington, D.C., in late September) for November 20.
- A coalition of labor, environmentalists, consumer groups, and others organized in early December to stop the passage of Fast Track legislation giving the U.S. President unhindered power to expand NAFTA to all of the Americas and negotiate other treaties that would “drag down living standards in the United States and around the world.”<sup>215</sup>

For each visible protester there are thousands of sympathizers becoming bold enough to take a stand or to protest with their wallets by boycotting mahogany, grapes, sweatshop products, or countries, like Italy, that batter pacifists. Beyond the demonstrations, throngs are simplifying their lives and getting off the consumer treadmill or out of the urban rat race. Hundreds of thousands are organizing locally and advocating more humane, sane, and sustainable jobs, right livelihoods, a living wage, affordable housing, renewable energy, communities, and institutions. Soon multitudes will be employing the coaching solution. All are worthy, all are needed for people to assert their rights of self-determination.

We must help those involved in oppressive excesses to remember that all peoples have rights to pursue freely—without outside interference—their personal, economic, social and cultural development. All people have the right to determine, unhindered, their political status and their place in the international community.

People have a right to protect their small businesses and farms, workers and traditional cultures, biological wealth and ecosystem health. Present forces of corporate-state globalization are at odds with these rights. Indeed, they seem hell-bent on subjecting local communities and people to domination and poverty. It is up to us to shift the collective consciousness toward equal participation in the process of determining our shared future.

### **Community Needs Exercise**

Self-determination together with meeting human needs worldwide is one sustainable remedy for reducing poverty and exploitation. When outside forces determine a community’s destiny, people can neither meet their needs nor actualize self-determination. To break this cycle of collective oppression, people

require a strategy for fostering diverse and vigorous community-based economies in contrast to the standardized corporate-based economic model that homogenizes all cultures.

Through the process of applying The Natural Step Framework, assessing, and meeting human needs in each community, you and your neighbors—not global forces—can begin to generate and protect secure livelihoods at the local level. Besides coaching your community to become responsible for its own food security, cultural and biological diversity, and a healthy local ecosystem, you may want to “plant seeds” among your coachees for adopting a sister village abroad. By finding creative ways to encourage others in circumstances more difficult than your own, you can help spread the message of sustainability and self-determination. You can begin with letters or e-mail or fund raising for an exchange program or through working with one of thousands of non-governmental organizations making a positive difference in poorer countries such as Ecology Action.<sup>216</sup>

One way to assess human needs—in your community or your sister village—is by using the Needs Matrix, mentioned in previous chapters. (See Appendix A.) It reflects nine universal human needs applicable to all cultures. What changes over time and through cultures is the *diverse* way different peoples satisfy these needs, says Manfred Max-Neef, the originator of the matrix. Since human needs are interrelated and interactive, Max-Neef’s systems approach helps people identify synergistic and ‘legitimate satisfiers’ for these key needs. Otherwise, people might select ‘pseudo-satisfiers’ or ‘inhibiting satisfiers,’ or even destructive ones, which block the satisfaction of the rest, with unfortunate implications for both the individual and society.

In coaching circles or small dialogue groups, participants can work through the matrix and, using self-adhesive pads, identify first the barriers that impede the satisfaction of human needs. Next, coachees can select the ‘satisfiers’ they see synergistically meeting community needs. The adhesive sheets can then all be put on a large matrix placed on the wall for all to scrutinize. After dialogue, your group can come to consensus on what satisfiers can best contribute to the health of your community. For sample matrices with diverse examples, review a copy of Max-Neef’s *Human Scale Development*.<sup>217</sup>

Giving you another way to “read the world,” this needs exercise has a threefold value. First, it helps you identify human development strategies aimed at the satisfaction of human needs in diverse communities. Second, as a participatory, creative, and educational exercise, it brings about a state of deep group awareness, generating synergy and respect for inclusion. Third, participants take away a powerful new tool (or system) that can be applied almost

anywhere for diagnosing, planning, assessing, and evaluating human needs. How your community satisfies them can make a crucial difference locally.

### **Economic Tyranny by Proxy**

Unlike human needs, which most people easily grasp, traditional economic theory fails to compute for very nearly everyone... except that wee segment of the world's population pushing to globalize the world economy—for the benefit of guess who. Compared to six billion stakeholders and counting, this global gang wields an unsporting amount of power over people, democracy, and the planet. The James Carville mentality of “it's the economy, stupid” reigns supreme in established halls of power.

Traditional economists have been telling us for years that re-structuring our economy to harmonize with Nature and people's needs will cost too much “right now.” They neglect some enormously important advantages that would accrue were we to replace fossil fuels and nuclear energy with wind, solar, and fuel cells. They ignore what history tells us: the benefits amassing from new ways of fueling society—in this case, renewables technology—would include new products, new services, new jobs, and, yes, even new profits. It happened when we switched from wood to coal, from coal to oil and gas, and from the horse and buggy to the combustion engine.

It will happen again when we switch to wind and solar energy. Futurist and Earth advocate Lester R. Brown says that ranchers and farmers in Texas and other wind-rich states are “discovering the value of their wind resources is like striking oil—except that the wind is never depleted.” Moreover, the “wind boom can rejuvenate rural communities throughout the world.” A natural gas utility in the Netherlands has discovered that it can eventually “use off-shore wind power to generate electricity, converting the electricity into hydrogen that will then be moved through the pipeline system now used for natural gas.”<sup>218</sup>

Although taboo in certain circles, we need an open and honest public dialogue about reinventing globalization to help us transition from the economic system that drives globalization today to the sustainable economies that will propel our futures. Wendell Berry, the farmer-essayist-poet from Kentucky refuses to let taboo stop him. He concludes that we have deputized the corporations to be our surrogates in producing and providing all of our food, clothing, shelter, entertainment, education, and care of our children, our invalids, and our elders. Our ecological dilemma, he maintains, “can be solved only if people, individually and in their communities, recover responsibility for their thoughtlessly given proxies.”<sup>219</sup>

Indeed, the case he makes concerning our economic system contains points you can use in a lively conversation within your coaching circle and your own community. It may surprise you to learn how many people feel alienated by economic tyranny. Berry says we have become too sentimental about capitalism. Its hold over us is so powerful that we believe we must sacrifice “everything small, local, private, personal, natural, good, and beautiful.” We do so on behalf of “the ‘free market’ and the great corporations, which will bring unprecedented security and happiness to ‘the many’—in, of course, the future....”

Berry rightly points out that the “free market” is “freest to those who have the most money, and is not free at all to those with little or no money.” This leads to a modern version of oligarchy (government by the rich, powerful, and privileged few). Intuitively, we recognize this just as we see that the free market does not foster the meeting of human needs worldwide or even locally. Nevertheless, we seldom voice this truth.

A few of Berry’s tongue-in-cheek “assumptions” that permit big corporations to rule the world may spur you to speak truth to power:

- stable relationships among people, places, and things do not matter
- there is no conflict between greed and ecological or bodily health
- it is all right for a nation’s or region’s subsistence to be foreign-based, dependent on long distance transport, and entirely controlled by corporations
- an economy is a machine, of which people are merely the interchangeable parts. One has no choice but to do the work (if any) that the economy prescribes, and to accept the prescribed wage
- therefore, vocation is a dead issue. One does not do the work that one chooses to do because one is called to it by Heaven or by one’s natural or God-given abilities, but does instead the work that is determined and imposed by the economy<sup>220</sup>

These assumptions have nothing to do with self-determination or a healthy and prosperous future. Rather they assume a people so duped that the economy determines and chooses for us. They indicate that we have given up our power and our sovereign rights to these enterprises, whose multi-million dollar political contributions effectively “buy” the candidates who support corporate globalization.

This “merger” of government and big business has stifled the human spirit and turned ordinary people into consumer slaves. When such pooling of industry and government last took place on a large scale half a century ago, we

fought a world war against what was then called fascism. In your dialogues, remember to call a spade a spade.

In a sustainable society, people serve each other within the context of what their location can naturally support and what is fair to all, often beginning with sustainable agriculture for local food production. Using appropriate technology, people can import items that cannot be produced locally, and, after local needs have been met, can export surplus products.

Hold a dialogue in your coaching circle tracing the origins of the products you buy. Ask questions like, Were our purchases produced locally or thousands of miles away? How much fossil fuel burned to deliver them? Did child labor or other unsustainable and unjust practices produce them? Were the wastes from their production dumped into the ecosphere or were they biodegradable or re-used? Aside from the “economic” costs, what were the costs to Nature, humanity, society? What would it take to create a community-based economy in your town? Plant the seeds for new sustainable, community-based businesses in your own neighborhood.<sup>221</sup>

### **Your International Rights**

Peace teacher Colin McCarthy says that over the past couple of decades the U.S. has “bombed Libya, Grenada, Panama, Somalia, Haiti, Afghanistan, Sudan, Iraq, and Yugoslavia. There are two things about those countries—all are poor countries, and the majority are people of dark colored skin.”

Discouraged by such heartless domination, several years ago I proposed that a coalition of NGOs bring a class action suit to the International Court of Justice at The Hague on behalf of oppressed people of the world whose basic human rights and rights of self-determination have been flagrantly abrogated. This might be done under the authority of the Universal Declaration of Human Rights or under the UN Charter, which places self-determination as one of its highest priorities.

Perhaps we also need to bring a global class action suit on behalf of the millions of workers down-sized around the world because of the illegitimacy and corruption of the prevailing neo-colonial economic system. Certainly, workers from Enron who lost their jobs, homes, and retirement savings are ripe for such an action. So are people laid-off from any large corporation claiming grim financial problems only to announce a month or so later that the Chief Executive Officer received a 300 million dollar bonus.

Hundreds of thousands of laid-off workers have suffered for one key reason: the refusal of the United States to support economic and social rights. The Council of Europe, whose members consider “civil and political rights and

social and economic rights to be interdependent and indivisible,” protect people’s right to work.<sup>222</sup>

The U. S. has never endorsed the International Covenant on Economic and Social Rights, although it does embrace its sister document, the International Covenant on Civil and Political Rights. The U.S. gives lip service to the Universal Declaration of Human Rights. These three comprise your International Bill of Rights.<sup>223</sup>

The U.S. reluctance to endorse social and economic rights goes back to the heyday of Cold War rhetoric. The super powers butted heads over many things, including international human rights. The Soviets chose to endorse social and economic rights. The U.S. backed civil and political rights. To be evenhanded, the U.S. has given a little more than empty talk to several specific social rights such as freedom from inequality; opportunity; non-discrimination in the work place and in housing; and a modicum of care in the face of ill health or poverty. Nonetheless, these and other social rights remain slippery and unevenly applied for far too many citizens in the homeland where money governs.

Reaching the level of the European Union’s social enlightenment remains a challenge. As Robert Fritz said more than a decade ago, referring to U.S. politics, “politicians are often the last to catch up with the real leadership emerging from the grassroots.”<sup>224</sup> It is high time we ordinary people reclaim our basic human rights in the social and economic spheres. It is time for a new political paradigm where people matter more than the glorified bottom line.

### **The Politics of Sustainability**

When courageous journalists ask about the inequities between the powerful and the people, heavyweights react with a predictable lame squawk: “class warfare.” Vested interests fear the public may wake up to the dominant myth the rich use to keep the bottom ninety-nine percent in their place. Unmasked, that myth adds up to the critical mass of humanity becoming conscious of the wisdom System Condition Four inspires. It tells us in part that concentrated wealth is unsustainable, and so is poverty.

The key political process in advanced industrial society has been industrial policy-making. In the United States, those who make policy in the interest of industrialism are the real political bosses, although they are rarely elected officials. Generally, they are industry tycoons who simply finance political campaigns and pay specialists to write industry-friendly legislation. Deeply indebted by corporate contributions, our so-called representatives dutifully enact laws for the cash cow that feeds them. Bent on attaining a

monopoly in the market, tycoons reward politicians with yet more cash, and the cycle continues, leaving people and the planet behind in the wasteland of poverty and pollution.

One of the underlying themes running through this book has been “everything is connected.” The political is not merely votes hanging on a chad somewhere out there in a vacuum. The political is connected to everything else: our economic system, our health and well-being, our relationships, humanity’s present prospects *and* the prospects of generations yet unborn, the web of life, and on and on. Everyday caring people are connected to the political every bit as much as those jawboning globalization and industrial policy-making.

“The personal is political and the political is personal,” counseled Petra Kelly, co-founder of the German Greens, almost two decades ago. Politics is far larger than merely casting a personal vote at election time. Every choice we make affects everything else and has political repercussions, directly or indirectly. Indeed, to a greater or lesser extent everything we do *not* do matters politically. Inaction, too, has its impact. Recall those who did nothing and remained silent during Hitler’s insanity. Remaining silent—not speaking truth to power—can have shocking political—and human—consequences.

Consider the enormity of Kelly’s message. Everything each person on the planet does or does not do influences the larger system of which everyone else is a part. Everything we do matters. Thus, it behooves us to be more than mere voters in the political realm. Let us also be mindful, compassionate, informed, and engaged citizens. Attend not merely to your personal life—attend to your public life, too. Your self-interest is at stake. Everyone’s is.

Likewise, political action and inaction have an effect on every person, directly or indirectly. The political is personal. Moreover, the political can range from family, neighborhood, office, and right up through the state or province to national governments, international organizations and super-national corporations. Politics is not confined to formal governmental structures or to public view.

Take the political posture of the United States government during the development of nuclear power. From the Manhattan Project that began in the early 1940s through the A-bomb testing during the 1950s and 1960s, the official policy was secrecy. Anyone relaying atomic secrets faced the harsh punishment of death. With the exception of what they read between the lines of government propaganda, the public knew very little.

Truly, the scientists themselves did not know enough about the enormous consequences their experiments would thrust on society:

- Long-lasting health effects from both low-level and high-level ionizing radiation
- Colossal costs associated with dismantling military and civilian nuclear installations
- The yet unsolved problem of what to do with nuclear waste
- Long-term public anxiety over the possibility of nuclear holocaust
- And, now terrorist threats to nuclear power plants or from nuclear bombs in suitcases

The politics of nuclear secrecy has indeed been personal, particularly for survivors of loved ones that died from the effects, children whose bodies and brains suffered harm, and those born with mutated DNA.

In the wake of some of these issues, grassroots political movements cropped up around the world. New Zealanders took one of the most heartening actions: making their country a “nuclear-free zone.” At the time pundits ridiculed “the mouse that roared,” as if a small nation’s decision would never matter one whit.

Critics aside, this political breakthrough was quite personal for all of us, providing the first public sense of relief from nuclear anxiety since the Atomic Age began. Future historians may well credit feisty New Zealand with telling a new story about our species—championing a new vision—and super-exponentially evolving human consciousness in the process. For until that moment in history, few people of the Cold War era had been able to imagine a nuclear-free anything. New Zealand’s spunk added a new spark to the collective consciousness and a shift took place in people’s hearts and minds around the globe, pulling them toward a compelling vision of a nuclear-free world.

Let us follow suit. Let us be feisty like the New Zealanders and encourage each other to become the change we want to see in the world. And remind one another again and again that plutocrats represent a tiny fraction of the six billion people on this planet. Let us reclaim our power. For politics actually means something far more profound than mere partisan politics, which may partially explain why less than half of the eligible voters in the U.S. currently participate in national elections, and even fewer in state and local contests.

The methods and tactics involved in managing the global political economy, however, affect all of us. Poverty and injustice anywhere in the world, to paraphrase Dr. Martin Luther King, Jr., is poverty and injustice everywhere. Environmental racism diminishes us all. Everything, including the personal and the political, is connected.

Examine your own experience with the political and economic system, your own heartaches and joys. Initiate a dialogue with others about the personal as political and vice versa, about everything being connected and inter-related. Look at the inequities and merit in the health care system or the economic system. With a trusted friend or your coaching circle share the brutalities and contexts that affect the people close to you and the people you will never know personally but with whom you share a connection via the human family.

Celebrate your newfound consciousness of self-determination. Strategize nonviolent ways to assert it, peaceable ways to resist the unsustainable forces gone mad in a world capable of so much more beauty, truth and goodness. Read the world. Keep working on the Needs Matrix. Nurture community. Perfect the present.

Reframe the political as a politics sensitized to seven generations hence. Coach others to envision a politics that is neither left nor right but in front, on the cutting edge of creating unique and diverse life-sustaining cultures worldwide. In league with that future, clarity and effective choices will emerge.

Finally, unless you favor a holocaust greater than the 20<sup>th</sup> Century version, do not remain silent. Speak truth to power, each other, and yourself.

## Farewell Footprint

By virtue of the universal right of all people to self-determination, a sustainable future is *ours* to determine together. From the bottom up. More than a choice, self-determination is a powerful prerogative for humanity to assert. This is particularly so when we exercise this privilege simultaneously in our culture, our inner consciousness, our behavior, and our society.

Until now, powerful forces have ignored the ecological dimensions of our shared dilemma. Regardless, today people recognize the complexity of the inter-related challenges we face. *Everything is connected*. Human needs and the health of our natural systems must now take center stage on the public agenda. Otherwise, the human toll will exceed what good hearts can endure.

Already the damage has reached tragic proportions. The British Red Cross, for example, reported that in 1998 environmental catastrophes created twenty-five million refugees, more than the number created by military conflicts. That same year more than fifty-six million people were temporary refugees from floods in China. Natural and human-induced disasters claimed more than 105,000 lives in 1999.<sup>225</sup> Terrorism, with its roots in unmet needs, has taken countless lives and profoundly affected the rest of us.

The global economy threatens the natural systems that support all life on our planet. If not quickly and sustainably transformed, our political and economic systems foreshadow more suffering than good hearts can bear. Coaching people in your community to become bold, able, and self-determined advocates of The Natural Step Framework represents the soundest and most compelling strategy for healing the insanity of the social and ecological violence plaguing our world.

Expressing the spirit of self-determination in our daily lives will move us forward more quickly toward the shared sustainable future we most desire. A future, as Paulo Freire dreamed, that is “less ugly, less mean, less authoritarian, more democratic, and more human.” A future where the privileged few have evolved in life-giving ways and acknowledged that widespread personal transformation is not enough. A future where *everyone* has an opportunity to integrate personal growth and development, self-determination, the System Conditions for sustainability, and a consciousness that encompasses universal caring. That will represent a giant leap forward in the evolution of our species and move us along the path of genuine social transformation.

Self-determination is the anti-dote for the death of democracy teeming across the planet. People need a way to become aware, get in shape, and take meaningful action for the campaign a shift to self-determination and sustainability will require. The remaining chapters set out skills and strategies for boosting humanity’s prospects in these arenas. Let us now turn to the basic skills we will need for transferring our new knowledge base to others so that good hearts can prevail.

## CHAPTER 10

# Coaching Skills

## Enhance Your Abilities to Inspire Others

The crucial skill was insight, the ability to see connections.

—M. Mitchell Waldrop, *Complexity*

*Somewhere along the line, Monsanto specifically and the industry in general lost the recipe of how we presented our story. When you put together arrogance and incompetence, you've got an unbeatable combination. You can get blown up in any direction. And they [Monsanto] were.... They lost the battle for the public trust.*

—Will Carpenter, Former Biotechnology Strategy Chief, Monsanto  
*The New York Times*,  
January 25, 2001

### Foothold

The skill-set introduced in this chapter contains inspirational seeds that can germinate the best in people and the outcomes they create together. You will apply the skill-set in the Coach Five Project coaching circles explained in the following chapters. To the extent that coaching circles inspire people around the globe to spawn greater sustainability, a vibrant new reality longing to emerge will unfold: a new millennium more peaceful than the last.

In alignment with the skills we have already covered, such as evoking shifts, prompting self-discovery, and coming from a place of curiosity, the skills spelled out here are relevant when sharing The Natural Step Framework with individuals, small groups, and communities. These specific skills are especially useful in delivering the intentional message of what it will take to co-create a sustainable future.

People are free to choose how they employ the wisdom contained within The Natural Step message. As The Natural Step founder Dr. Karl-Henrik

Robèrt says frequently, “I take on the role of ‘secretary’ and do not presume to tell others how to use this knowledge. They are the experts in their own lives or businesses.”

Likewise, we use coaching skills, not to convert people to live their lives in a prescribed way, but rather to facilitate the awakening of a new consciousness of connectedness and well-being. As we convey the non-negotiable System Conditions required for a humane, just, and sustainable future, people apply them according to their unique and diverse situations. By virtue of our connectedness in the overall system of Nature and Society, the well-being of each part of the whole matters. On a more intimate level, our connectedness and well-being also matter. For that reason, we use our coaching skills to encourage the highest and best in one another and to discover new perspectives and healthier ways of relating to self, others and the world.

With the Coach Five Project structure, disciplined practice, and a supportive coaching circle, you can learn how to coach others effectively in applying The Natural Step Framework at the community level and in co-creating regional sustainability. In the process you can evoke self-determination and spark personal growth. Appendix C points out accredited coach training programs and organizations offering The Natural Step training.

Coaching each other not only enhances your skill-set. You also create an atmosphere where trust can grow and a shared vision of a sustainable world can emerge. You discover how to evaluate upstream strategies and solutions for your locale, and, as a bonus, your own forward-thinking and caring community can take root.

## Finer Focus

“Skill” means a learned ability, a competence, know-how or mastery in a trade or one of the arts or sciences. The word “skill” in English evolved from the Old Norse word, *skil*, which meant discernment. In a short list of noteworthy coaching skills, discernment ranks second only to listening. A discerning coach shows insight, perception, and sound common sense. “Discern” itself comes to us from the Latin word, *discernere*, which literally meant to perceive (*cernere*) apart (*dis-*), or simply, to distinguish differences.

## Sketching Distinctions

Throughout this book I distinguish differences, such as “upstream vs. downstream.” Whenever I do so, I am coaching you, the reader, to discern subtle differences in words or phrases. Distinctions stretch our often-sluggish

mental models and hone our understanding. In a sense, distinctions are remedies for that dismal habit of sleepwalking through life.

Practice sketching distinctions in your coaching circle. What are the differences in “being vs. having,” “becoming vs. being,” “power to vs. power over,” “sustainable vs. unsustainable” and other distinctions covered in Chapter 7? Discern what motivates members of your coaching circle and make up distinctions of your own to evoke global consciousness and self-determination. Sketching distinctions is a skill that will serve you well as you become more visible in your own community and begin to shape sustainable change at the local level.

### Listening

Listening is a paramount coaching skill. Do you listen to your higher self, your intuition, your heart? Or do you listen to your gremlin or your self-critic? Do you listen to the world, to Nature? And when you listen to other people, do you only listen to what they say or do you also notice what they say “between the lines” and what they fail to mention at all?

**Listening to the Other.** No doubt, you have heard a newscast in which a spokesperson gives a lame excuse for an official position. You probably wanted to rebut “Come on. That’s not honest. Tell us more!” “Tell me more” is an approach that puts us in others’ “shoes when they talk, without arguing, or changing the subject,” wrote journalist Brenda Euland years ago. It invites the other to “show his soul, his true self. Then he will be wonderfully alive.... When he has been really listened to enough, he will grow tranquil. He will begin to want to hear me,” explained Euland, a contemporary of Carl Sandburg, who greatly admired her wisdom.

To unblock people’s “creative fountain,” Euland advised, listen to them “with affection and a kind of jolly excitement.” Until this creative listening activates, “no one has called out of them, by wonderful listening, what is true and alive.” When we listen with such “complete, absorbed, uncritical sympathy, without one flaw of boredom or impatience,” we build trust. “Unless you listen, people become about a third of themselves. Unless you listen, you can’t know anybody.”

Euland came to think of creative listening as love: “The most serious result of not listening is that worst thing in the world, boredom; for it is really the death of love. It seals people off from each other more than any other thing.” Creative listeners find joy in listening and “want you to be recklessly yourself, even at your very worst,” she observed. Yet there are also unloving kinds of listening that dry up the creative fountain. Critical listening, for example, can put a person in “a straitjacket of hesitancy.” Censorious listening,

Euland tells us, is where a person “mentally (or aloud) keeps saying as you talk: ‘Bunk... Bunk ...’”

Heartfelt listening, conversely, sparks magic. To learn to listen, Euland offers a few tips. First, seek tranquility in the present moment so you will hear every word, sense the whole truth about the other, and feel “existence, not piecemeal, not this object and that, but as a translucent whole.” Second, give up your self-assertiveness, “that nervous pressure that feels like energy and wit but may be neither.” And, listen to friends and foes, bores and clowns. “The true listener is much more beloved, magnetic than the talker, and he is more effective, and learns more and does more good.”<sup>226</sup>

**Listening to the World.** Listen for and pay attention to stories related to ecological wisdom, self-determination and human rights. Given that satisfying human needs worldwide is equal to the first three System Conditions as we illustrated in Chapter 5, listen for stories in conversations and in the media that reflect the urgency of sustainability. Listen for the imperial media’s priorities. What percentage of their coverage speaks to legitimate human needs? What percentage sounds like disinformation? Propaganda?

Begin a dialogue in your coaching circle about the lack of harmony between the mainstream’s focus and the priorities necessary for co-creating a sustainable and just future. Really listen to what people are revealing and pondering in these dialogues. Listen for hidden power relationships, inconsistencies and what is missing. Listen for over-simplification. Listen for agency (who acts and who is acted upon and by what means).<sup>227</sup>

**Listening to your Self.** Scientists have discovered that there is actually a rudimentary “brain” in the heart, with an intricate network of neurons, neurotransmitters, proteins, and support cells. This neuro-system is advanced enough to “qualify as a ‘little brain’ in its own right,” maintains the Institute of HeartMath. The elegant yet complex circuitry of this heart brain “enables it to act independently of the brain in the head, to learn, remember, and, as the saying goes, produce the ‘feelings of the heart.’”<sup>228</sup>

Communication between the two brains influences our perception, reaction speeds, our ability to choose and make decisions, our emotional balance and health, and our intuition. Stress creates gridlock on this inner information highway, while harmonious traffic between heart and brain, as the Institute of HeartMath explains, increases mental clarity and intuitive perception. The Institute suggests that listening to the core feelings in our heart, such as love, compassion, care and appreciation, helps us access our intuition, enjoy relationships, lower our stress levels, improve our health and perception, slow the aging process, and experience the full texture of life.

So *how* do you listen to your heart? There is no specific formula. You will have to find the process that works best for you. *Generally*, I do not consciously contemplate that I am about to listen to my heart. It just happens. This results from years of examining and discarding deep patterns of culture-limiting beliefs and self-limiting beliefs. On occasion, I feel a need to listen to my heart, and while the process is not linear, for clarity's sake I will list the steps as I understand them.

To begin, I create a “space” for suspending judgment. I tell my mind to take a break so I can be open to synchronicity and possibility. (The mind seems to enjoy stifling heart connections.) Second, I stop “doing.” I find serenity. Third, I trust that the voice I am about to hear is not my self critic, but rather the inner voice of my heart. Fourth, I wait for its presence. This sounds peculiar, since our hearts are always with us, always speaking with us. Yet until we decide to listen to our inner voice, we distract ourselves in outside matters. Fifth, rarely do I literally hear a voice. Rather, I sense an urging either in my body or my imagination. If it expresses itself in my body it may feel like a rush, a visceral tug or a shiver with a “message” attached. In my imagination, I “see” it as a vision. Sixth, by way of reflection I interpret the “language” of the message.

The two most dramatic messages my heart has sent me occurred before or during the abrupt deaths of my father and mother, who died eleven years apart. In both cases, the messages came when I was in a relaxed, serene state, not busy, rushed, tired or irritated. Both were vivid visions accompanied by peaceful sounds or “music” and profound meaning. A few hours after each experience I received phone calls confirming what my heart had gently told me earlier.

Serenity, a state of inner peace I cultivate daily, seems to be the shortcut to listening to my heart. Serenity opens me to possibilities, great ideas and opportunities I'd otherwise miss. Listening to your own heart and intuition gets the creative juices flowing and is far more effective than the typical mental orientation.

To nurture positive outcomes in your life and community, listen to the wisdom of your heart before launching into a new activity. Taking the heart stand may not usher in a social transformation overnight. It's a safe bet, though, that the journey will be less stressful and a lot more joyful.

### The Joy Skill

Coaching for social transformation eventually evokes pain and sorrow. This experience stems from our newfound understanding of “everything is connected” and our responsibilities *vis á vis* the widespread suffering in the world. We need friendly, civil ways to offset the heartache.

There is a big difference in being facetious (saying something humorous, witty, or playful with no intention of hurting another) and being sarcastic (saying something, often deviously or indirectly, with the intention of ridiculing another verbally). While neither sarcasm nor cynicism is attractive or appropriate in a coaching circle (or in most any setting), playfulness and joy are qualities to cultivate and cherish.

Joy-based relationships offer a sense of being encircled and enlivened by good company. Well-timed playfulness lightens the burdens of the world. The joy skill encourages partnerships of bliss and flow. It echoes the liberated voice, the Self, the jovial connection of collaboration.

Certain coaches are fond of saying “add value just for the joy of it.” In a world congested with excessive violence and pain, I say, add joy just for the value of it. In your coaching circle, add laughter and joy, yet don’t force it. If folks agree, take time for singing, dancing, and communing with Nature. Create favorite games and celebrations. When moods and milieu get tense, smile boldly and pull from your magician’s sleeve a creative reminder of the joy skill.

### Decoding the World

One person who launched a great deal of joy in the world was the Brazilian educator and prolific author Paulo Freire, best known for his famous *Pedagogy of the Oppressed*. Hailed by many as the most influential thinker in the field of education during the last half of the twentieth century, he brought literacy to literally thousands of peasants in various developing countries.

The similarities between coaching and Freire’s “liberatory” education have long fascinated me. Freire’s impact has been especially powerful in the informal education field. Unlike training approaches that treat people as objects, his system embraces people as “subjects”—people who can love and express joy and explore training as “cultural action.”<sup>229</sup>

**Decoding.** One of the major skills Freire imparted was *decoding the world*. The skill involves first naming or coding situations in people’s everyday lives. A “codification” is a representation such as a photograph, a drawing, or even a word that abstractly stands for aspects of people’s day-to-day situations. The drawing or word allows for dialogue that examines the concrete reality depicted. Like metaphors, codification helps unveil the meanings of people’s existence.

After coding comes decoding. Like the process of discernment, decoding makes it easier to see the relationships between the coded representation and people’s other daily experiences. Through dialogue in a *circulo de cultura* (a culture circle, from which my idea of coaching circles evolved) decodification

reveals previously unnoticed meanings of reality by examining individual symbols from various perspectives.

When the coaching circle delves into its collective history and experiences that carry political significance, it can generate codifications that are more complex. Such “generative” themes stimulate considerable dialogue, creativity, and more decoding of the reasons for their existential situations. Dialogue and decoding encourage reflection and the shifting of interpretations of reality from opinion, oversimplification, and limited perspectives to a richer, fuller knowledge of our shared planetary dilemma.

From here participants can break through “prevailing mythologies” to attain new levels of awareness, especially that of “being an ‘object’ in a world where only ‘subjects’ have power.” Ultimately, you will become a “subject,” aware that you and your circle members are changing the world. This evolved consciousness is *conscientização*—Portuguese for “conscientization”—the on-going process at the heart of Freire’s liberating education, the key aim of which is “to regain dominion over the creation and use of culture.”<sup>230</sup>

**Exercises in Decoding the World.** In your coaching circle, set aside regular times for decoding the world. Bring newspaper clippings depicting other places in the world and find links with your own community. Establish a sense of connectedness with other communities and other nations. Dialogue with each other about how you relate to experiences and events elsewhere.

Select a topic for codification. For example, let’s say someone in your coaching circle wonders how prepared your community is for a water crisis. To decode “water crisis” and make it part of your awareness it may be necessary to “map” its local and global dimensions. Bear in mind that everything is connected. To discover the dimensions beyond your community, have someone search the web for resources. The WorldWatch Institute offers an educational alert ([www.worldwatch.org/chairman/issue/000621.html](http://www.worldwatch.org/chairman/issue/000621.html)) that relates, in this instance, to population growth and water poverty, and describes startling connections between various dimensions of the problem.

Knowing the facts will help you and your group practice applying the System Conditions, backcasting, and a step-by-step itinerary for heading off a water crisis in your community. For background and a dialogue on the potential ripple effects throughout the world, you may make a list of the facts, or codes, like the following:

- Water wells are drying up and water tables are falling on every continent
- Record numbers of countries are facing serious water shortages

- 80 million newborns stake their claims to the Earth's water resources each year. Most are born in countries lacking enough water to drink, produce food, or satisfy hygiene
- By 2050, world population will increase by 3 billion people. By 2050 population will increase in India by 519 million, China by 211 million, Pakistan by 200 million, and Egypt, Iran and Mexico by more than half of their present populations
- Annual depletion of aquifers is 160 billion cubic meters or 160 billion tons
- It takes 1,000 tons of water to produce 1 ton of grain, making the present 160-billion-ton water deficit equal to 160 million tons of grain or one half the U.S. grain harvest
- 480 million of the world's 6 billion people eat grain produced by pumping water from aquifers faster than it is replaced by precipitation
- 70 percent of the water consumed worldwide, including both that diverted from rivers and that pumped from underground, is used for agricultural irrigation
- 20 percent of the water consumed worldwide is used by industry
- 10 percent of the water consumed worldwide is residential

Other factors shaping the water crisis may come into the conversation. Millions of displaced villagers with traditionally low water use, for example, are moving to cities where their water use can triple in an urban high-rise apartment building. The ratio of water used to produce wheat in India is 1,000 tons of water to 1 ton of wheat worth perhaps \$200. The ratio for industrial output is 50 times more powerful. 1,000 tons of water used in the industrial sector can produce \$10,000. Agriculture is losing out in the competition with industry and urbanization. Also, the shift to a more westernized diet means people consume more meat and dairy products, which require 800 kilograms of grain per person a year compared with only 200 kilograms on a traditional diet. This means four times as much water will be needed to grow feed for livestock.

Water scarcity is now crossing national borders threatening water wars in regions with more demand for grain imports, more water shortages, and increasing populations. The upshot is the diversion of water from agriculture to industry and urban centers, resulting in less local food production and dependence on imports. The World Watch Institute reports: "The water required to

produce the grain and other foodstuffs imported into North Africa and the Middle East last year was roughly equal to the annual flow of the Nile River.” While that is water equivalent to a second Nile River in the region, the Institute suggests that rather than wars over water, “the competition for water seems more likely to take place in world grain markets.” The winning countries will be those that are “financially strongest, not those that are militarily strongest.”

One thing is virtually certain. Grain prices will continue to rise as our water deficit grows. Even if we were to stop over-pumping everywhere today (not likely, of course), grain production would fall dramatically, also pushing up prices. The Institute warns “Unless governments in water-short countries act quickly to stabilize population and to raise water productivity, their water shortages may soon become food shortages.” Otherwise, we will be facing destabilized grain markets, millions of additional starving and thirsty human beings, and a world teeming with even more sorrow and pain than today.<sup>231</sup>

Beyond the bald facts, what will you discover through decoding the water crisis? On a global level, you will see that population growth is intimately connected with water availability and the grain market. Policies that influence slower or zero population growth are indispensable. You may also discover that eliminating water subsidies, introducing more water-efficient technologies, planting more water-efficient crops, raising more water-efficient forms of animal protein, and raising the price of water to reflect its value will help improve water productivity.

On a local level, depending on your unique situation, you may want to encourage low- or no- flush (composting) toilets, rain collection systems, gray water methods for lawn watering, locally grown foodstuffs, bio-intensive community gardens, and eating lower on the food chain. You may decide to talk to members of your planning commission about discouraging water-guzzling businesses, like golf courses and car washes, exotic thirsty landscapes (public and private), and all water indulgent new developments.

On a personal level, brainstorm with your family ways to lower water consumption at home. Shorter showers, hand watering, fuller washing machines, and camp-style tooth brushing and vegetable cleaning are a few ideas. Using the System Conditions as a guide, estimate how much water is required for your consumption habits. Do your purchases capitalize on the Earth’s crust, synthetic substances, rainforests, misuse of eco-services or child labor?

### **Mindful Questioning**

Oliver Wendell Holmes long ago reckoned, “A mind once stretched by a new idea never regains its original dimensions.” One of the finer skills for

stretching minds is mindful questioning, the unfolding of our curiosity by questions we ask, within our inner and outer contexts and opening ourselves to notice all sorts of connections.

Mindfulness itself can expose paradox, inconsistencies, misleading interpretations, what is missing, what is enough, what is self-indulgent. Mindful questioning can point out sensibilities and indifferences. It marks our conscious presence in the here and now, yet spotlights our concerns about the future. It illuminates emotions, physical conditions, injustice, issues just under the surface, and issues so obvious we usually miss them.

There are at least three simultaneous processes brewing when one is mindful. The first is the process of being attentive (and curious) in the present moment. The second is insight into likely aftereffects of choices made at that moment. Finally, there is the process of deliberation through which we weigh the integrity of any decisions we may make. We can remember these coexisting processes with the acronym AID (attentiveness, insight, and deliberation). Mindfulness equals AID.

Mindful questions can contemplate aspects of life, our social system, our economic subsystem, our health, agricultural, energy and educational establishments, and countless other topics. When we are mindful, we wonder and ask about what is so, what is missing, who benefits, who is suffering, who is happy, and so forth.

Indeed speculative questions can be mindfully useful in helping us get at the truth of our situations. As Puerto Rican poet, essayist, and historian Aurora Levins Morales reminds us: “‘What if?’ is a legitimate tool of investigation, and the question can be as valuable as an answer.” Speculation helps us propose “a radically different interpretation” and offers an alternative for “opening up how we think about events, even when there is no way to prove anything. It is useful to ask, ‘What would have to be different for us to understand this story in this other way?’”<sup>232</sup>

The skill of mindful questioning will be invaluable in your coaching circle. Let’s suppose, for example, that one of your members seems overly focused on condemning the “selfish choices” of individual officials of multi-national corporations. Dwelling on the perceived motives of the *individuals* involved will not resolve much, though insight into how their *organizations* are part of the downstream complexity will ultimately be quite helpful.

You can probably think of a number of mindful questions to enhance this situation: What needs to happen upstream so that people can freely make more sustainable choices? What would it take to open the hearts of people in “X” organization? To open their access to their own humanity so that they can

make more generous or humane choices? What changes in the “system” would foster sustainable decisions without threat of retaliation? What strategies might we develop to start a dialogue with individual local officials in the interest of all of us, as Nelson Mandela was able to do with F. W. de Klerk in South Africa?

For another coaching circle example, suppose someone’s perspective has collapsed (or never expanded) in space and time to such a degree that she can only imagine consequences a few days out and no farther than home and work. Having lost touch with the bigger picture, she disregards the longer-term and wider ramifications of her activities. Can you think of questions that will stretch her mind globally and futuristically? What can you ask that will help her see that she is overlooking future consequences?

Besides your own questions, consider these: What are our present priorities and how will they affect humanity’s prospects in twenty, fifty, two hundred years? If everything spreads (The Natural Step’s first scientific principle), what are the implications of burning tires for fuel in cement plants five, fifty, five hundred miles away? Is there no “away?” Substitute other technologies that violate System Condition Two to fit your own local concerns.

In order to show there are precedents for practical ways to untangle the messes we create, coaches often ask how people handled similar situations in the past. Such an approach has its limitations, though, because we now face problems initiated by the old thinking, which, if relied on again, will most likely further complicate the situation. So, seek questions that evoke alternative, more creative ways of resolving problems. Brainstorm and use the Think Tree Approach (see Chapter 3). Backcast rather than forecast. Shut off the old thinking and encourage mindfulness by asking the Miracle Question.

The Miracle Question goes something like this: Pretend you go to sleep tonight and when you wake up tomorrow “the problem” has been completely resolved. Upon awakening what would be your first feelings? How would you describe your mood? What would reality look like? Smell like? Sound like? What would be different? How would you describe the structure of the new reality? Its system(s)? Its stakeholders? Its capacity for diversity? Its values?

Finally, mindful questioning can come from the higher Self, the heart, one’s intuition. As one of the eight steps to enlightenment in Buddhist philosophy, “Right Mindfulness” is a timeless teaching that seems “tailor-made for today’s fast-paced world,” explains Lama Surya Das. Mindfulness reminds us “to be aware of our bodies, our emotions, our thoughts, and events as they occur, moment by moment. Conscious presence is the lesson of this step.”<sup>233</sup>

Practice mindful questioning daily. Notice if it wakes you up and refreshes your relationships. Start a Mindfulness Journal for recording new ideas, your

progress and your favorite questions. A month or so later, ask yourself “Am I consciously present? Is my mind now sufficiently stretched never to return to its original dimensions?”

### Facilitating

A facilitator is the linchpin that holds the shared intention and spirit of a group together. To facilitate literally means to make easy, or to ease people into learning or doing something. A skilled coach acquires facilitation skills. A skilled coach, within the context of a coaching circle, facilitates meetings, workshops, and special gatherings. In addition, he or she facilitates

- the sharing of power among group members
- the expansion of mindfulness, consciousness and intimacy
- constructive communication and creative dialogue
- the building of community and consensus
- the resolution of conflict

**Sharing power.** Coaching circle participants select from among themselves someone to facilitate and keep the group on task. Keeping the group on task may involve new and innovative learning, consciousness raising, dialogue, problem posing and solution creation, fact checking, seeking and sharing opinions, and understanding each other’s mind-sets. In addition, the group may suggest new goals and initiatives, or it may examine and synthesize ideas, or work on articulating a shared vision. The facilitator manages all this while also helping the group share power by honoring the democratic process and maintaining a healthy group dynamic.

The group also shares power by assigning members responsibilities for accomplishing their tasks in a harmonious way. For example, one participant can be “the heart,” the member responsible for encouraging (from the Latin, *cor* for heart) everyone to voice their opinions and feelings. Someone else can be “the clown,” the member who stays on the lookout for tension levels, calls a time-out for a joy break when the group seems stuck. Another participant can be “the clerk” to keep track of and remind the others of their goals, tasks, standards, and progress. Someone else can be “the ear,” listening and interpreting or paraphrasing what someone else has said or calling the group’s attention to a suggestion or reaction. The facilitator makes sure group members handle these responsibilities constructively.

The facilitator also helps the group determine the agenda for the meeting, “eases” the endeavor of acting on the agenda items, and in a fair and timely

fashion ensures that all participants express their opinions and listen with respect to the other voices. Rotating the role of facilitator helps each member of the group hone his or her facilitation skills. Rotating the roles of “heart,” “clown,” “clerk,” and “ear” gives each participant practice in those skill areas as well.

In a coaching circle, people share power by exercising control over the agenda and its contents, their chosen tasks and roles, the group dynamics and activities, and the underlying democratic process. The coaching circle provides a forum for developing skills essential for asserting self-determination. Empowerment is both the journey and the destination of this approach, the means and the end. In short, the coaching circle is a mutually supported learning organization for empowerment.

**Expanding Mindfulness, Consciousness and Intimacy.** The facilitator is consciously present moment by moment during coaching circle gatherings, ever mindful of moving the group forward. At the same time, the facilitator makes the space safe for intimate sharing of ideas and feelings by expressing a sense of unconditional acceptance and gentle reminders to the others when their roles of “heart,” “clown,” “clerk,” and “ear” appear timely. With sensitivity, the facilitator encourages insight into the group’s tensions, feelings and attitudes, linking them to the present topics, remaining fair and objective when controversies arise, and discerning different energies emerging within the group.

Consciously connecting and clarifying themes that unfold, the facilitator balances mindful questioning with good-humored deliberation, initiates at appropriate intervals backcasting and the step-by-step itinerary (detailed in Chapter 6), and clearly sums up the dialogue at the appropriate time so that the group can reach consensus and arrive at decisions. Finally, the facilitator reinforces intimacy through endorsing, acknowledging, or expressing genuine and factual—not fluffy—appreciation for individual and group contributions.

**Constructive Communication and Creative Dialogue.** Inasmuch as artful conversations, creative dialogue, and constructive communication represent prime aspects of both facilitation and the coaching relationship, we need to be vigilant about developing and upgrading our skills in the talk arena. When we compliment each other, for example, our comments must be sincere. In fact, insincere, insensitive and fluffy remarks dishonor the recipient.

Other hallmarks of constructive communication are recognizing there is good in everyone, refraining from gossip, accepting people where they are, discovering ways to connect, keeping the channels open, being clear and patient, sharing feelings and opinions, and being trusting and trustworthy. Previously addressed features include listening, mindfulness, being open and authentic, and eliminating cynicism, sarcasm and ridicule.

Dialogue is a particular kind of communication. In traditional training, the teacher lectures, that is, “pours” knowledge into the empty vessel-student. Freire used dialogue as a way to leap over this kind of “oppressive learning.” He intuitively recognized that a two-way exchange marked by cooperation and mutual acceptance and trust would enhance learning in both the teacher and the learner.

Using dialogue, “all teach and all learn.” Perpetuating domination and oppression, one-way instruction is not constructive communication. Dialogue, however, promotes connection and empowers its “ambassadors” to develop their humanity, consciousness, and self-determination. Through dialogue, people move beyond debate, find their voices, and seek, as Freire maintains, “political, as well as economic and personal empowerment.”

The Co-Intelligence Institute (CII) considers dialogue to be any communication that is “shared exploration towards greater understanding, connection, or possibility.” Co-founder of CII Tom Atlee quotes consultant John Adams’ simple description: “Dialogue is people truly listening to people truly speaking.” Atlee says “when we all truly speak and truly listen, we can’t help but generate greater shared understanding.” Toward that end, Atlee has reproduced guidelines that distinguish between dialogue and debate.<sup>234</sup>

Dialogue is not appropriate in all situations. At times, your coaching circle will simply want to move quickly through certain agenda items. When you are building rapport, working on coming to consensus, seeking greater understanding of some aspect of coaching or The Natural Step Framework, dialogue is the ideal approach. To evaluate your group’s progress in learning dialogue skills and constructive communication, take time near the end of your sessions to share insights and feelings. Be open to suggestions for growth.

**Building Community and Consensus.** One of the main benefits of participating in the Coach Five Project (see Chapter 12) is the building of a caring, supportive, and sustainable community. This can embrace a small personal community of friends and family, a neighborhood community, a larger municipal community or any medley of these. It is up to the people involved to come to consensus on what a sustainable, caring and supportive community looks like.

Missing in the fast-paced lifestyle of advanced industrial society is the solidarity and emotional closeness of valued relationships. If you have ever attended an extended retreat or workshop or been in a band or a choir, you have a taste of the kind of sharing a caring community can convey. The camaraderie, conversations, fun, good will, and the sense of being “in your element” can all be part of the positive aspects of a solid, supportive and caring

community. One senses in such a community an unspoken pact, “all for one and one for all.”

This bond is especially important in cultural change work, which will nearly always be more effective and fulfilling if carried out with the aid and solidarity of others. People who choose to go it alone may burn out or get depressed. A caring community can bring harmony not only to our work, but also to our lives and economic security. When we face difficulties, community gives that extra encouragement necessary to get through the rough spots. It exposes us to new ideas, shared insight, relationship (and other) skills, deep friendships, nourishing fun, satisfying fellowship, and opportunities for radically enriching the meaning of our lives.

A group of people with an intention of sharing their lives and discovering sustainable means for satisfying their legitimate and mutual needs embodies my notion of a caring, supportive, sustainable community. Unless living together physically is your clear choice, I challenge you to get creative and explore a wide array of possibilities that are congruent with the new life-sustaining culture. Remember that creativity is unlimited.

For basic economic security, you may want to learn about or simplify the Mondragon cooperative model or mesh it with other ideas.<sup>235</sup> Although challenging to get started, co-creating an alternative sustainable business with members of your support community can bring you sufficient resources to meet your basic material needs. Or, get involved in an existing sustainable enterprise. A few alternatives in either case: a used bicycle or book store, a recycling business, a food co-op, a bakery, a market herb garden, tree-pruning, garment making, dried flowers / crafts shop, a petting zoo, a soup and sandwich bicycle delivery service, child care, elder care, tofu or cheese shop, a virtual assistant service, straw bale construction or another sustainable building venture. Others include solar-wind power or rain collection system installation, tutoring, progressive web site design or content provider, meeting facilitator, training and development, and editing, writing or publishing sustainability-oriented columns, articles, newsletters, pamphlets, or books.

Cooperating with others in the economic sphere may free up time for a variety of projects, like coaching people on The Natural Step Framework. Sharing tools, vehicles, and appliances in your own neighborhood saves money and provides a stepping stone toward building community. Starting organic gardens can strengthen your community economically, nutritionally and socially. Agreeing to rotate tasks associated with the garden, leadership and other activities encourages the transfer of skills and knowledge within your community. Involving children and senior citizens will provide opportunities for practical

skill transfer, as well as fun, wisdom sharing across generations, and time-honored economic value.

Dramatically simplifying your life and your shopping patterns and shifting from full-time to part-time work can enable you to have enough money to meet basic needs, using your extra time for sustainable culture change projects.

Shared appreciation of our strengths, talents, and caring quotients strengthens us individually and collectively. Shared appreciation enhances trust and confidence in our communities as well as the celebration spectrum in our lives. It energizes us and releases the creative juices. It helps us remain positive in the face of otherwise intimidating odds. It adds good memories to our experience bank, which in turn increases the cohesiveness of the group and reinforces our sense of community. Beyond sharing your feelings, talents, and experiences with your community, regularly share your appreciation.

**Consensus Building** is another skill the facilitator-coach will find exceedingly useful. It may be helpful to distinguish between what consensus is and is not. Consensus *is not* about decisions made behind the scenes and then railroaded through the formal group with lip service or a rubber stamp. While more common than we like to admit, such approaches block extraordinary learning opportunities. Group members may experience alienation. People miss prospects for contributing to the overall outcome. By default, they forego certain possibilities for growth, development, and skill enhancement. The potential for brainstorming creative ideas vanishes. Needs go unmet. The genius of higher social intelligence dies.

Consensus *is* an effective non-voting yet democratic process for decision-making. Let's explore what this implies.

Earlier we noted that everyone has something to contribute. Giving everyone an opportunity to become "leaderful" and to learn new skills strengthens not only your present group but also future groups that replicate from preceding ones. During the process of co-creating a new life-sustaining culture, taking advantage of the hidden talents and resources of all your coaching circle's members will be important. Consensus decision-making contributes to this.

One way to encourage leaderful strengths is for the group to understand and have control over the decision-making process. Mindful questioning can play a role in developing that understanding. For example, how transparent was the selection of the facilitator? How would you describe the selection process? How was the agenda for the session developed? Did the group agree on what they wanted to accomplish? At what points during the session were decisions made and how? Was the decision-making process dictatorial or did it encourage democratic voting or consensus? How well did the decision-making approach

work? How well were roles fulfilled (heart, clown, clerk, ear, facilitator)? How can we improve our next session given what we learned today?

Clearly there are advantages to consensus and voting over undemocratic or hierarchical forms of decision-making. Proponents of consensus decision-making maintain that it is more democratic than voting. It can be less efficient, yet the advantages of consensus are worthwhile. For example, when voting, people tend not to listen to others as well and simply go with their preconceived notions (and egos) on various decisions. With consensus, the best ideas of everyone can be synthesized, offering the possibility ultimately of far better ideas and decisions.

The intention of consensus is for the group to reach general, not total, agreement. When one or a small number of persons does not agree with the decision, it is up to the facilitator to ask them if they are willing to “stand aside” or if they feel solidly opposed to the issue and wish to “block” action on it. If they choose to stand aside, their disagreement is noted formally. If they choose to block the decision, a compromise must be found or the issue will have to be tabled. A healthy dialogue ensues and often the ones blocking the decision make their ideas clearer giving the group a chance to listen more carefully and to rethink its decision. Frequently, better decisions result, more positive energy emerges in the group, and no one feels alienated.

When consensus is sought good facilitation skills are essential. Drawing out all voices and views helps people understand the complexity of the issue. The facilitator will listen carefully and ensure people fully understand the issue at hand, and will state points of agreement and hesitation, moving people forward toward resolution.

When agreement looks promising, your facilitator will test for consensus by asking if everyone agrees on the proposal, restating the specifics to make sure everyone is clear. A response from each person will indicate consensus or not. Silence is not allowed at this stage. A good practice is to repeat the question, asking if there is full support, especially if consensus came quickly.

When agreement looks impossible, your facilitator can ask for alternative ideas and solutions. If only one person is clogging the works, he or she may not be hearing others as clearly as possible or others may not be phrasing their case well enough. The facilitator can ask for rephrasing. If that still does not work, the facilitator can ask the person blocking the decision to choose someone safe to coach him or her privately for a few minutes. The coach can request that the blocker put in writing his or her feelings and a mini-solution. This process may help the one opposing the group articulate the disagreement more cogently or feel more solidarity.

If that does not help move people toward consensus, a break, a game for relieving tension, the “stand aside” strategy, or tabling the decision may be necessary. When postponing a decision, a good practice is for the facilitator to ask two people of opposite sides of the issue to get together and work out a compromise to present to the group when the issue is raised again.

The increase of group enthusiasm to move forward in co-creating a new culture will be well worth the practice of consensus. Indeed, you may use consensus decision-making well into the future in other venues besides your coaching circle.

**Resolution of Conflict.** Resolving conflict is another worthwhile skill the facilitator-coach will use. In due time conflicts are bound to arise within groups, communities, and nations.

Conflict, in the words of peace educator Colman McCarthy, means “we need a new way of doing things, the old way has failed. If two sides can define what they are fighting about, the chances increase that misperceptions will be clarified.” Beyond defining the conflict, other steps he offers for resolving non-violent conflict include focusing on the dispute, not the person, and becoming, as Hemingway said, “strong in the broken places.” This will increase the chances for mending the relationship by placing attention on shared concerns and needs.

McCarthy also suggests that we elicit the facts rather than opinion; listen actively rather than hear passively (an ideal coaching distinction) because “listening well is an act of caring;” take the resolution process to a “peace room” or other emotion-free place; start with one small “doable;” and develop forgiveness skills. His final step in nonviolence conflict resolution is to purify our hearts. “Merely an elegant way of telling ourselves, ‘I need to get my own messy life in order before I can instruct others how to live.’”<sup>236</sup>

Conflicts within our coaching circles and communities will most likely result from values clashes or simple misunderstandings, personality or philosophical differences, personal history and baggage. The facilitator needs to be alert to emerging conflicts and set aside blocks of time to explore and heal them before they become full-fledged difficult-to-resolve hostilities.

Conflict is not always a bad thing. Since we learn, grow and change from conflict, our intention is not to eliminate conflict, but rather to manage it with as much creativity as we can muster. Moreover, fresh conflict often appears more hurtful than it really is simply because we liken past hurts to current conflicts. Nevertheless, the facilitator is responsible for curbing the potential psychological or physical damage and amplifying the strengths and accomplishments of the two sides of the conflict.

When the facilitator asks those involved to define the conflict clearly, that process by itself sometimes resolves the issue. More often than not, however, the facilitator will need to shift negativity toward more positive energies. A good starting point is asking the participants what most disturbs them about the situation. The group can help those in conflict distinguish between current reality and negative feelings and identify where needs are not being met legitimately, to borrow a phrase from Max-Neef. Giving those in conflict a safe space for discharging their negative feelings can often form part of the resolution.

Actively listening and mirroring back feelings and content can move frustrated participants forward. The listener must concentrate solely on mirroring back feelings, suspend judgment, and refrain from offering advice, suggestions or solutions. This is not a time for dialogue. Once the person in conflict feels heard, sharing appreciation helps to make that person feel part of the group again. These skills are helpful in discovering underlying causes of their feelings. Moreover, these skills help establish resolution processes, making sessions more productive for everyone

**Community Conflict Exercise.** Conflicts may erupt because of some kind of institutional or system injustice outside of your group. In the following exercise see if you can discern how to manage and resolve a few conflicts in your larger community. First, brainstorm recent conflicts or problems that divided people in your neighborhood or city. Narrow the topics down and then take one aspect of the chosen issue for role-play resolution. In the role-play have a person play “the oppressor” and another play “the oppressed.” Test the issue against the four System Conditions. Focus especially on needs “satisfiers.” Remember that the oppressor is just as much imprisoned as the oppressed and merits compassion and forgiveness. What insights emerge from your dialogue? Do injustices in the social and economic system of your local community play a key role? In light of what your coaching circle uncovers, what three steps might you urge your local government to take?

### **Insight, Compassion and Synthesis**

We have now come full circle; we are back to discernment and insight where this chapter began. When you and your Coach Five partners repeatedly practice the coaching skills in this chapter in the context of global consciousness and with the pure intent for a just and sustainable future for all, discernment and insight will become the inescapable natural ripple effects. Your synthesis quotient will expand and you will cultivate compassion.

The Dalai Lama has long held that a positive future can never emerge from hearts burdened with anger or resentment, but only from compassion

and love. Indeed, he argues that compassion and love are the “source of inner and external peace [and] fundamental to the continued survival of our species.”<sup>237</sup> Compassion, he says, is a feeling of “intimacy toward all other sentient beings, including those who would harm us.” In Buddhist philosophy, the most basic level of compassion is empathy, “our ability to enter into and, to some extent, share others’ suffering.”

Recognizing that everyone desires to be happy and avoid suffering, the Dalai Lama reminds us that compassion helps us see the sameness of ourselves and all others, even when they are “wealthier, better educated, or better placed socially.” When we deliberately open ourselves to the suffering of others, we extend this skill to the level of “great compassion,” dedicating ourselves, he says, “to helping others overcome both their suffering and the causes of their suffering.”

Furthermore, when compassion is absent, writes the Dalai Lama, “our activities are in danger of becoming destructive” and when we ignore “the impact our actions have on others’ well-being, inevitably we end up hurting them.” Thus, to cultivate compassion, reach beyond the confines of narrow self-interest and recognize yourself in others—“especially those who are disadvantaged and whose rights are not respected”—and create conditions for happiness.

Compassion enhances your ability to honor the difference between discernment and judging. Judgmentalism comes from a mind-set of taking a *position* based on one’s invented superiority or imagined inferiority. Discernment flows from a deep caring, stirring you to take a *stand* with your life. Scientific and wisdom traditions affirm that discernment leads to intuitive insight and synthesis. Consequently, the ability to discern what is just and humane and what is not, what is sustainable and what is not, will be a key skill for co-creating a life-sustaining future.

As a discerning coach, you will hone that all-important skill of insight in which you see the subtle connections. In her international workshops, Joanna Macy often recounts an ancient prophecy about insight. The revelation warned of dangers threatening all life on the planet at a time remarkably similar to our present challenge. On that occasion “warriors” would emerge whose hearts and minds carried within them the kingdom of Shambhala, which provides them courage and two weapons to overcome the peril. The first essential weapon is compassion, because it helps us discern, open to, act upon, and “experience our pain for the world.” Yet its energy and passion can burn us out.

For that reason, the second weapon is insight, which cools down the heat of compassion. Insight helps us “experience our radical, empowering interconnectedness with all life.”<sup>238</sup> With insight, we know that it is “not a

battle between ‘good guys’ and ‘bad guys,’ because the line between good and evil runs through the landscape of every human heart.” Insight goes beyond discernment (which perceives subtle differences) to reveal that “actions undertaken with pure intent have repercussions throughout the web of life.” Both compassion and insight are necessary to beget our life-sustaining culture, which longs to come forth in the world.

As Freire and others have made clear, reflecting consciously on the issues that influence the quality of our lives entails the recognition of not only the limitations of information, but also our biases, limited belief systems and our yet-to-be stretched perspectives. To sharpen our skill of insight, we need to remain open and mindful of the complexity of the challenges we face, duly noting their many facets and inter-related links between and among people, things, ideas, and concepts. We need to remember to apply the System Conditions, to dialogue deeply and broadly with each other on the pivotal issues, to backcast, and to take a stand through harmonious action on the most pivotal issues.

Closely related to the skill of insight is synthesis, the ability to integrate separate parts of an idea in our minds and hearts and build a complex whole. The more quickly we can synthesize, the more quickly we can begin to coach for sustainability. Rather than taking a prolonged period of time to filter, analyze and process new ideas, we can instantly combine those new ideas with other ideas already in our minds and trust the self-organizing capacity of our mental models.

Because all phenomena, from the universe to an ant colony, have this self-organizing quality in common, we can trust that it also occurs in our minds. “In each case a network of interacting elements,” Joseph Jaworski reports in *Synchronicity; The Inner Path of Leadership*, “gives rise to the emergence of a new entity with completely new properties.”<sup>239</sup> Our mental networks apparently interact with ideas or patterns new to us in an analogous manner, giving rise to synthesis. While not new for everyone, perhaps, some of us may experience a new understanding of a blend of old (or old and new) ideas, resulting in “a new entity with completely new properties” possibly combined in a new way.

When we trust this emergent quality of the universe, even before we have gained a full grasp of the new ideas, we can begin using them. Synthesizing yields the most innovation with the least amount of effort. While the inspiration to act is manifest, the new synthesis frees us to engage the challenges all around us more quickly. Conversely, processing or filtering can take days or weeks, by which time we have lost the catalyst for action that synthesis renders and the spark to act has dissipated. This may explain why the buzz and excitement of a weekend workshop dissipates after several days of processing the

information gleaned from it. When we “process” new information, new ideas or experiences, we “filter them through past experience in order to determine their value,” notes Coach Isabel Parlett in *The Daily Distinction*. “Processing acts as a filter and protects you from directly engaging with something new.”<sup>240</sup>

Of course, blindly trusting new ideas without testing their source and quality will not always assure the most positive aftereffects. In this Age of Information, “new ideas” and oddments of information emerge every second. Discernment and insight can guide us in discovering which new ideas will be worth pursuing.

To aid our insight, we can now claim science, like art, as “a universal possession of humanity,” in E. O. Wilson’s words, and recognize that “scientific knowledge has become a vital part of our species’ repertory,” encompassing as it does “what we know of the material world with reasonable certainty.” Furthermore, in this new century Wilson says “mere information alone,” will not be sufficient for “running” the world: “We are drowning in information, while starving for wisdom. The world henceforth will be run by synthesizers, people able to put together the right information at the right time, think critically about it, and make important choices wisely.”<sup>241</sup>

Inasmuch as all of the great culture-changing movements of history had their origins in the hearts and minds of ordinary people, the new cultural changes we anticipate will flow from the same source. To paraphrase Wilson, the world henceforth will be coached by people like us who have become leaderful synthesizers able to put The Natural Step wisdom together with coaching skills and the multiplier effect of the Coach Five Project, reflect consciously about our task, and make sustainable choices wisely. Indeed, we intend to become the change that longs to come forth in the world.

## Farewell Footprint

Integrating the coaching skills outlined above is one way to incorporate a healthy and positive change in yourself, others, and the world. “When you have taken a stand with your life,” as co-founder of the Hunger Project Lynne Twist related, “you see the world as the remarkable, unlimited, boundless possibility that it is. And people see themselves through your eyes in new ways; they become more authentic in your presence because they know you see them for who they really are. The negativity, the dysfunction, the positionality begin to fall away and they feel ‘gotten,’ heard, or known.”<sup>242</sup>

From creatively listening and experiencing both the pain and joy of the world to decoding our world and focusing on mindful questions we ratchet up

our abilities to influence positive change. Becoming competent in facilitating groups will help spread a leaderful skill essential to culture change. Facilitation skills provide the means to share power, expand consciousness and intimacy, and communicate constructively through creative dialogue. These skills help us focus on building caring community and consensus, and learn how to resolve conflicts amicably. Finally, the paramount skill-set of insight, synthesis and compassion will be vital to a sustainable and just future for all of us.

Simply reading this chapter and reflecting on it will not “teach” you the coaching skills necessary for personal and social transformation. The skill of insight, like most skills, cannot be taught. Action is the key. You have to enact it within yourself.

You install a new skill through reflection, action, reflection, action, reflection, action until it indeed becomes part of who you are. To make these skills your own, stop what you are doing. Shift from a doing mode to a being mode. Reflect, contemplate, imagine using various skills. Mindfully question yourself and the wisdom of your priorities. What you focus on you become. On that account alone you can shift from being to becoming. Become the person who makes a positive impact on the larger system, who contributes to shaping our collective consciousness and our collective wisdom, and who takes action using these skills. With practice, they will arise from within and become as natural for you as riding a bicycle. To give you the practice to get into peak coaching form, we now jovially turn to Coach Camp.

## CHAPTER 11

# Coach Camp

## Have Fun Growing Your Confidence and Competence

*Relationships. That's all there really is. There's your relationship with the dust that just blew in your face, or with the person who just kicked you end over end... You have to come to terms, to some kind of equilibrium, With those people around you, those people who care for you, your environment.*

—Laguna Pueblo Indian Writer  
Leslie Marmon Silko

### Foothold

If you have ever climbed a mountain, you know the thrill and the grace of reaching the crest. After a vigorous climb and from such a vantage point, on a clear day you see the world afresh. If you are like I was on my first Girl Scout trek, you encounter reverence as you behold the vast expanse before you. You may also experience a spectrum of heartfelt emotions, energies and thoughts. The din of daily life falls away.

Once you grasp the potential of coaching as a delivery system for shifting people's perspectives toward a just and sustainable future, you will likely experience a similar thrill and grace. From the "coaching crest," you will see things in a new way. The world will look different to you, fresher, more organic, like a creation brimming with bright possibility.

As you behold the sheer beauty of all the world's cultural and biological diversity, again, you may experience stirrings comparable to those you remember from atop the mountain. Where once we complained of barriers, we now see them as opportunities. Where once we absorbed the cynicism of postmodernism, we now radiate optimism, albeit measured. Where our personal lives were once chaotic or stagnant, we now experience "flow" on the broad and vibrant strip between order and chaos where all growth and change take place. Where once we were emotionally needy or grabby, we can now

generously serve others. Our needs are met, our values updated, our vision clear. We thrive. We are almost ready to coach our world to thrive, too.

Designed to help you get into peak coaching form, this chapter provides pointers on key personal domains to manage (ego, mind, intuition, inner peace, connections and relationships). It offers fieldwork, suggestions, and scenarios for practicing coaching skills. You can enjoy role-playing, closing the VAS Gap, and enhancing public presentations related to co-creating our shared future. This chapter also aims for higher levels of consciousness, competency and confidence while realizing our vision of a life-sustaining society and a future of peace, social justice, and harmonious relationships.

As you near the summit of your basic training, you will find the following approaches conducive to coaching in your corner of the world. Be sure to bring joy and good times to these practice sessions. Remember this is Coach Camp, not Boot Camp.

## Finer Focus

Because I wanted to convey a *focused interval* for practicing coaching skills and integrating The Natural Step knowledge base, my first inclination was to call this chapter “Boot Camp.” Yet, to evoke activities more akin to summer camp rather than the rigidity implied by boot camp, I changed the title to “Coach Camp.”

After you read Chapter 12, you can bring together five friends or neighbors, meet once a week for a few hours as a group or by phone with each one for half an hour, and experiment with coach camp—or any of the other chapters in the book.

Have fun with these practice sessions. “Dance” as if no one is watching. Dialogue as if everyone matters. Coach as if everything is connected! And remember Paul Peabody’s words: “The power to lift up is stronger than all that holds us down!” Coach five—we’ll all thrive.

## Getting into Peak Coaching Form

Getting into peak coaching form for co-creating the new sustainable century requires that you first examine the ways you have learned to manage yourself. As you read the following points, do a self-evaluation.

**Your Ego.** You do not have to be a trained psychologist to recognize a healthy ego, that part of our personality that is receptive to others’ energies, needs, pain and thoughts. An unhealthy or inflated ego tends to place blame on others. Yet, when a lettuce plant does not grow well, Thich Nhat Hanh

reminds us, we do not blame the lettuce. Likewise, the ego is sensitized to the historical and cultural conditions that influence people's growth for better or worse.

Small children, naturally, remain egocentric until about age four or five, when they begin to develop abilities to recognize not only other points of view, but also others' needs and desires. Closed to the other's point of view or suffering, adults with unhealthy egos generally focus attention on the mistakes of others without regard for personal painful histories that often trigger people to blunder.

Peak coaching form calls for a healthy ego and compassion. The first step in this leg of our journey is to tell yourself the truth about your ego needs. Do you frequently seek fulfillment from external sources? Do you attempt to get a sense of well being through other people or material things? Do you like who you are? Are you authentic or do you put on airs?<sup>243</sup>

If you don't like some of your answers, find a way to reclaim your integrity. Otherwise, your need for reconciliation with your past and who you are in the present will drain you of energy, limiting your ability to contribute.

Shift *from* manipulating others for attention or seeking comfort from external things, people and institutions *to* knowing and loving "thyself." Expanding self-awareness leads to healthy self-esteem. Get to a place where you *enjoy* your own company. You will have more to offer others and they will be attracted to both who you are and the gifts you have to share with them.

**Your Intellect.** The mind is far more complex and resourceful than we ever imagined. The way we think and process our mental activities varies with each individual. We need to be aware of distinctive mental processing at the hemispheric level of the brain. The left and right sides of the brain (the cerebral hemispheres) specialize in different ways in their processing of information and in their learning and problem solving strategies. Certain people appear to be more dependent upon one type of processing than the other.

Research suggests that "the *left* hemisphere in most individuals not only specializes in language function, but it also performs linear, analytical, algorithmic, sequential, temporal, and logical computations. It seeks out details rather than perceiving wholes." Furthermore, "the *right* hemisphere, in most people, appears to specialize in synthesis, nonlinear, holistic, and gestalt-like functions. Its forte is images, pictures, faces, spatial and holistic patterns. Non-verbal tasks, music, art, the humanistic/mystical part of civilization may have their roots in this hemisphere.... To the more popular proponents of hemisphere specialization theory, the right hemisphere is visuo-spatio, perceptual, intuitive, and perhaps the seat of creativity."<sup>244</sup>

Other research suggests that the division of brain hemisphere function may not be quite as clear cut as the split brain theory suggests. Social and cultural factors may influence cognitive processing and learning strategies more than biological factors. Be that as it may, our advanced industrial society rewards linear (left-brain) thinking and discourages non-linear thinking, which is one of the primary reasons for our present tight squeeze dilemma. My own research in this arena supports the influence of social and cultural differences as a predictor of hemispheric preference.<sup>245</sup>

Brain hemispheres aside, let us look at practical ways to get your mind in peak coaching form. One of the easiest and most effective ways of nurturing your mind is simply to let natural curiosity guide you. This means functioning from a place free of rigid, limiting belief systems. The Think Tree Approach described in Chapter 3 is an enormously helpful way to move beyond limiting beliefs and linear thinking. Thinking “upstream” provides a sense of optimism and confidence. It encourages whole-brain thinking. In contrast, thinking downstream seems to stifle wisdom and creativity because details become the focus (a left-brain function).

Encourage learning in your life. Keep a learning journal. Nurture your mind so it opens to new connections, new ways of seeing. Suspend judgment. Explore, experience, and experiment. Mimic Nature. Such mental activities will open you to the Earth’s systems and cycles, to the cosmos, and will move you toward natural strategies and wisdom.

Remain humble and remember, as Kenneth Boulding declared long ago, “a way of seeing is always a way of not seeing.” Just as many individuals spend years having acquiesced to a limited, often dogmatic way of seeing that perpetuates an on-going clash with reality, one’s culture often clashes with Nature’s Ultimatum. The Easter Island culture certainly did, as we saw earlier. Our mainstream culture is following suit.

The way many of us see the global economy, for example, prevents us from discerning that our way of seeing is merely one way among myriad possibilities. The old paradigm of business-as-usual, unlimited growth, and endless materialism represents an inflexible way of seeing.<sup>246</sup>

Initiate a dialogue around revising the old paradigm. How does it clash with Nature’s Ultimatum? Is perpetual domination by a wealthy privileged few (*a fraction of a percent* of the world’s total human population) the only vision we can see? Engage your intellect. See the whole, not the fraction. Look upstream, where complexity is diminished. Ask mindful questions. Apply principles. Test your findings. Reflect. Seek wisdom. Act.

**Your Intuition.** Wisdom does not emanate primarily from the mind. German philosopher Frederick Wilhelm Nietzsche declared “There is more wisdom in your body than in your deepest philosophy.” Pay attention to what your body is telling you. It bypasses your intellect and normal “seeing.” If something frightens you enough for your “blood to curdle,” as the old saying goes, stop and immediately pay full attention to your intuitive voice.

Previous chapters addressed several aspects of intuition. The important thing to remember here is that both The Natural Step Framework and coaching are highly intuitive. Despite the robust, scientific foundation of The Natural Step’s System Conditions, your intuition will nevertheless be exceedingly helpful when you begin to apply the framework. Likewise, trusting your intuition will give you the freedom to coach effectively and spread the consciousness for life to thrive here on our precious planet.

Solutions “arise from the flashes of intuition,” British mathematician and philosopher Alfred North Whitehead once wrote.<sup>247</sup> Just as analogy can be a source of knowledge, so, too, can intuition. One caveat, however. We do not always aptly interpret our intuition. For the average person, intuition (as we decode it) is on target about sixty percent of the time. The trick is knowing when to trust that it is our intuitive voice rather than our Gremlin misleading us.

Ancient wisdom traditions have been unwavering in telling us to listen to our hearts. Review the relevant skills from the last chapter. Get to a place where you can trust your intuitive voice.

**Serenity.** In a special inner stillness, you can hear your intuitive voice. Achieving inner peace (or serenity) helps you to renew your energy, re-connect with your center, and foster joy, self-awareness, harmony, and choice. As still water mirrors the clouds and horizon, your serene state reflects your authentic Self. It reconnects you to your generous heart and grounds you in inner peace.

You may be wondering “How do I know when I have found serenity?” If you “fly off the handle” easily, complain a lot, or blame others rather than taking responsibility for all that you have created in your life, you can be quite certain you have not found serenity. If you are busy doing rather than creatively being or if you cannot relax but feel like you always have to be productive or industrious, you have not found serenity. If you are addicted to that adrenaline rush, if you worry unnecessarily, or if you seem to attract problems, you have not found serenity. If you need to be with other people all the time and dread spending time alone, you have not found serenity.

Serenity begins to become part of your life when you recognize that the thoughts you *choose* to think are the colors that you paint on the canvas of your

life, as Ms. Anonymous once wrote (Anonymous was a woman, you know.) We become what we think. If we think dark fearful thoughts, we become dark and fearful. If we think loving thoughts, we become loving. When you can spend quiet time alone you are moving toward serenity, although you may have to schedule it in the beginning. When you enjoy your own company and accept yourself, warts and all, you will know serenity.

Another sign of serenity is being heart-prompted rather than worrying about what others will think about you and your external trappings. Being heart-prompted is paramount in finding serenity. When you are serene and feel inner peace you are far more likely to be authentically generous, loving, caring, and gentle-hearted. You will be less likely to want to “fix” others to fit your own preconceived standards.

Serenity helps you recognize and even celebrate a plurality of tastes, customs, manners and cultures in the world. It enables you to listen creatively to almost anyone.

Insights gleaned from a state of serenity will spur purpose—in yourself and others. You will refuse to wallow in the past. You’ll spend your conscious time primarily in the present. And rather than “hoping” for a better (but vague) future, you will backcast from a compelling vision and design a step-by-step itinerary that moves you forward, as we saw in Chapter 6, with inner peace to spare.

Once you enjoy serenity in your life, you will be able to reclaim several human qualities neglected during the last couple of “me” decades. These are the “coachingsque” qualities of integrity, genuine compassion, generosity, authenticity, flexibility, optimism and reverence for life. Welcome serenity into *your* life.

**Connecting to the Web of Life.** Reverence for life in its myriad forms is one of the pivotal values required for shifting our collective consciousness toward a viable, just, and joyful future. Indeed, not long after the fall of the Berlin Wall and the old Soviet Union, Mikhail Gorbachev proclaimed: “We need a new system of values, which recognizes the organic unity between humankind and nature and promotes the ethic of global responsibility.” To spur the development of such a system of values became the mission of Green Cross International, established by Gorbachev with headquarters in Geneva, Switzerland, and affiliates in twenty-six countries.

When you consciously embrace the interconnectedness of all life, you can be truly present with yourself, others, and the Universe. We are all connected. “Whatever man does to the web of life,” Chief Seattle allegedly said, “he does to himself.” In Chapter 2 we learned through the emerging science of complexity that even the flap of a butterfly’s wings in Texas can change the course of a hurricane in Haiti a week later. It all matters. Everything

is connected. Re-connect with Nature at least once a week, more often if possible. Garden. Smell the flowers. Hike to a picnic spot. Climb atop a mountain.

**Relationships and Relating.** In this universal dance of co-evolution in which we are all inter-connected, we not only aim to develop a healthy relationship with our higher selves and with the web of life. We also aim to strengthen our connections with each other. Let it be our mutual intention to strengthen the connections we already have, expand our circle of friends, and build a harmoniously connected community.

To achieve those aims, we may have to transform our relationships and the way we are accustomed to relating. By virtue of everything being connected, we need to reach out with compassion to those we perceive as sources of injustice, greed, and tyranny in the world. As we saw Nelson Mandela do in Chapter 1, we need to reconcile with those who abuse and exploit, for they, too, suffer.

A first step toward transforming relationships, in almost any context, is to discern the contrast between relationships based on *who people are* and relationships based on *people as objects*. In the normal everyday world, “who” people are refers to their values, innermost aspirations, and the “whole person”—not just what they “do” for a living or where they live or what labels are on their reputations, tax forms, or clothes. Object-oriented relationships are linear, patriarchal and dehumanizing.

When you look for the “who” first and put people ahead of results or what you can “get” from the connection, you will experience healthier and more fulfilling relationships. If we value mere results more than people, we miss the human dimension. Yet, it is a funny thing: When we hold the humanizing aspects of the relationship as top priority, better results emerge.

Were we to make two basic human shifts in the way people relate with one another, I suspect wondrous outcomes would occur. First, to create much more joy in the world the key shift is *from* perceiving people as objects *to* honoring them as whole persons and for “who they authentically are.”

Secondly, a shift *from* pushing for results *to* putting people and relationships first spurs trust and growth. Imagine the positive changes in all of our institutions (familial, penal, educational, commercial, governmental, etc.) were these two shifts to become the norm. Reflect on how willing you are to hold yourself to the standard of putting people and relationships ahead of results. What’s stopping you from making this choice today?<sup>248</sup>

When you are coaching a person or a group, how you relate with people is crucial. If you fail to discover “who” the coachee really is, forming a bond or developing rapport will simply not occur. Use your new coaching skills

(especially listening and mindful questioning) to establish an on-going, harmonious, and synergistic relationship with those you coach.

By holding those relationships as models for other relationships, through the ripple effect you will amplify harmony in your coachees' lives and the lives they touch. By modeling reverence for all life, through The Natural Step principles, you will simultaneously be modeling relationships of mutual reverence, trust, and real dialogue (people truly listening to people truly speaking).

In your coaching circles, observe how you relate with others, whether or not you are coaching one another. Rapport and bonding will be important here as well. It may take a few weeks of getting to know each other before your group moves toward cohesion and trust.

You will probably notice several relationship stages in the group setting. When your group is just forming, *dependence on the organizer* will most likely describe the first stage. As you get to know each other better, expect slight conflict as individuals compete for certain tasks and turf. Use your conflict resolution skill set from Chapter 10 if necessary.

Soon you will be validating one another and actively acknowledging each other's contributions, building community, and maintaining cohesion. Before your group formally disengages to create new coaching circles, a likely stage of your group's development will be "performing," especially via role-plays.<sup>249</sup>

### Role-plays

Most coach training programs employ the role-play tool because trainees need practice and a safe space for honing their coaching skills. In our Coach Five coaching circles we also practice skill development, especially in the context of role-playing. The main difference is that our role-plays focus not so much on individuals and solving their own personal problems as they do on social issues. Our typical role-play is more like a creative socio-ecological drama where a participant acts out the role of a stakeholder or tackles a typical situation we may encounter in our social transformation work. Role-plays generally last no more than ten minutes, followed by a conversation to evaluate everyone's learning and insights.

There are several valid reasons for using role-plays. First, we want to be prepared for real, live events when they actually occur—managing opposition at public hearings, mediating during a social conflict, or facilitating a public workshop on some aspect of our community's health, economy or ecology. Role-plays are excellent venues for that preparation because they increase our confidence and competence. They boost language, solidarity, team learning, and group spirit.

Second, we use role-playing to examine aspects of real social and ecological dilemmas—aspects that are both relevant and amenable to solution creation. Relevance is important because we want to maintain participants' attention. Situations reflecting Nature's Ultimatum help us remain mindful of our race against time—the sooner we shift toward a sustainable path, the better chance we have of making it through the neck of the “funnel” addressed in Chapter 1. Social conflict situations are also good choices for role-plays. Their social significance creates a stage setting where you can get excellent practice for future community activities.

Third, role-plays help to expand our perspectives, awaken our compassion, and anchor our learning around Life Coaching. They highlight our limiting beliefs, unexamined assumptions, and untenable positions. In the spontaneity of the moment of a role-play question, for example, we may see how unreasonable our everyday biases are—and they often dissolve on the spot. At that inspired moment, we may shift from taking a position to taking a stand. Suddenly unblocked, our perspectives may open to taking everybody's well being into account because, perhaps for the first time, we discern hidden imbalances of power and resources.

In addition, when we take on the role of the “oppressor,” for example, we discover a human being remarkably like ourselves. Stereotypes vanish. Our understanding of another's roles, emotions, needs and mental models expands, increasing our compassion for the “other.” This in turn enriches the productivity of future dialogues in the real world.

To assure a worthwhile outcome, set up the role-play with care. Get clear about whether the role-play's purpose is to learn from a potential situation or to examine a certain role. Explain the background and setting or what roles will be played and ask for volunteers or assign roles, urging people to take on roles different from their own real life identities. Give people a few moments to “absorb” their new identities before beginning the role-play.

If people crack up in laughter, get out of their roles, or wander away from the original objective, whoever is playing the facilitator role can stop the role-play and suggest a brief break while players regroup before beginning again. Depending on how well the role-play succeeds in unearthing issues, the facilitator may let it continue to a natural finish. When the role-play itself ends, players shift back to their real identities and the facilitator starts a dialogue to evaluate what people learned from the role-play.

The evaluation portion of the role-play is fundamental. This is a time for insight sharing. Each player can describe how the role-play felt personally. The facilitator makes space for everyone to contribute their feelings and thoughts

during the evaluation dialogue, reminds people to keep their comments constructive, and suggests a new role-play for exploring certain insights that emerged from the prior role-play. While you will want to keep your role-plays to around ten minutes, the evaluation can extend as long as it seems productive.

Through brainstorming or simple consensus, the group can determine topics for role-plays. Exploring the “funnel” is a fine place to begin. The setting can be whatever the group chooses: an intimate chat between two people over coffee on a Saturday morning, a telephone call to a friend and potential Coach Five participant, or a chance meeting at a park or a party. The objective here is to convey the “tight squeeze” of our shared dilemma (increasing waste and demands on the system while resources plummet and income of the masses dwindle).

Other topics may include role-playing aspects of the complexity shifts from Chapter 2, the Think Tree Approach—Systems Thinking—from Chapter 3, or photosynthesis and the cycles of Nature or reverse evolution and mass extinction from Chapter 4. Role-playing conversations around the System Conditions from Chapter 5 are vital for anchoring your knowledge base. Naturally, a role-play around backcasting or the step-by-step itinerary from Chapter 6 will be a productive activity. Once the group has confidence in describing The Natural Step Framework and compass strategy, specific topics in Part II may be useful grist for the role-play mill.

While proposing a role-play on the Human Needs Matrix may be tempting, because of the time required I recommend that you first work through the Matrix as a group in several work sessions. Applying the Matrix to sectors of your group’s own community can turn into a rich exercise. After a few sessions, you can then select aspects of the Matrix process to role-play.

You can role-play aspects of almost any topic in the book you need to master. Those role-plays might involve aspects of personal growth, visioning, self-determination, collaborative spunk, direct action on an important community issue—you name it. Simultaneously, you can rehearse many of the skills from Chapter 10 side by side with the situations and roles you are exploring during each role-play.

Once your group understands the role-play process, you will probably want to do at least one role-play each time you gather. If you are meeting with individuals over the telephone or in person rather than in a group, you can also set-up brief one-on-one role-plays for practice. Regardless, remember to take time to evaluate what participants gained.

Questions to keep in mind at this stage include. Did the role-play clarify new concepts? Did it promote insight? If so, what clarity, what insight? What

thoughts, emotions, or limiting beliefs did the role-play evoke in the players? What stood out as a “coachingsque” way of relating? What solutions to the situation emerged, if any? Were they upstream or downstream solutions? Did you test out those solutions or new insights with another role-play?

### **Closing the VAS Gap**

Beyond role-playing there is yet another tool in your endeavor to co-create a healthy and prosperous future: Closing the VAS Gap. Earlier we briefly addressed that exhausting void that stops us from creating quality and well being in our lives. This coaching chasm is missing three big pieces: Vision, Accountability, and a Strategy practical enough to close the gap. Coach Camp can be helpful here, too. Let’s look first at Vision.

**Vision.** A *compelling* vision as we discovered earlier is a mental picture of where you really want to be in the future—an image of the kind of world in which you want to live and raise your children. It is a future endpoint so attractive that it energizes you sufficiently to pull you toward it like a magnet. Distractions melt away as you almost effortlessly take whatever actions are necessary to move you forward toward the vision.

Rather than the typical tunnel vision of the past where you might have mindlessly barreled forward without regard to social and ecological forces, you now know the implications of mindless materialism and Nature’s Ultimatum. In connecting with a vision, you now take into consideration the non-negotiable System Conditions for a sustainable society.

Your capacity for understanding what it will take to shape a quality future and to experience well being has expanded remarkably. Without that capacity and the wisdom gained from Part I, visionary endeavors and abundant strategies most likely will fall short of sustainable realization. Discerningly, Dee Hock tells us that “without integrity, motivation is dangerous; without motivation, capacity is impotent; without capacity, understanding is limited; without understanding, knowledge is meaningless; without knowledge, experience is blind. Experience is easy to provide and quickly put to good use by people with all the other qualities.”<sup>250</sup>

**Group Exercise.** Developing scenarios—stories outlining hypothetical or projected chains of future events—is one way to integrate your new wisdom into short- or long-term visionary thinking. Have everyone in your coaching circle develop three scenarios representing his or her visions of:

1. the future dominated by increasing commercial globalization—a business-as-usual scenario

2. the future nourished by the spread of The Natural Step Framework—let's call it a Cultural Creative scenario
3. an alternative to the first two scenarios

Taking from twenty minutes to an hour, participants create the scenarios in the present tense as if they are telling a pen pal about events that have already taken place. This exercise can be handled as fieldwork during the week and brought to the next group gathering where each person shares their scenarios and then everyone combines them into three overall scenarios. Make it fun, not a chore. Be sure to get consensus from everyone before proceeding on this exercise or you may have a few members of your group finding excuses for not coming to the next gathering.

Alternatively or in addition, you can use group brainstorming. You can experiment with dialogue and the staircase model described in Chapter 6 or members of your group can create collages, drawings, or skits of alternative or possible futures. Through subsequent dialogue, backcasting, and the step-by-step itinerary process, you can develop strategies for moving your own community toward a sustainable and compelling vision.

The “burn into your brain” concept here is that you and your community will be only as great and sustainable as the vision you co-create. Such a vision needs to speak powerfully to people's highest values. Everyone will immediately recognize its benefits and want to share it with others. Envision what you most want society to become, ignoring “impossibilities.” Distill it to a pithy, brief statement. Then effortlessly become a “servant of the vision,” daring to lift people up with its bright prospect and inspiring purpose.

**Accountability.** How many inspired visions go unrealized for lack of commitment or accountability? Legions, no doubt. Visions realized require servants—people sufficiently devoted to the vision and disciplined enough to midwife the vision until new champions emerge. Unfortunately, what often happens is that people get excited about new ideas and visions, and then they over-promise and under-deliver. That makes the second aspect of the VAS Gap—accountability—crucial.

*Saying* you are committed or *declaring* you are a responsible or accountable person is not the same thing as proving you are. How do you prove your accountability quotient or your commitment? With whatever evidence you can produce to demonstrate you *did* something of substance in a timely manner beyond simply talking about it. You under-promise and over-deliver, not the opposite. A distinction that characterizes this phenomenon well is “in the trenches vs. armchair commitment.” Are you armchair committed or are you

out there in the trenches taking action? Shift from armchair chitchat to taking meaningful action.

Personal accountability is an important aspect of the coaching process. A common misconception among newcomers to coaching is that the coachee will learn discipline and commitment by becoming accountable *to the coach*. The coach, however, wants the coachee to become accountable to the coachee him- or herself. Otherwise, a co-dependency relationship might develop. The coach aims to empower, not dis-empower, the coachee. Thus, accountability to yourself is the standard. You are responsible for your own actions and outcomes. The coach coaches. The coachee takes the actions. Together they then celebrate the great outcomes.

Being accountable to yourself is not the same thing as being right or busy or “perfect,” although the mainstream culture often collapses this distinction. Indeed, in our highly individualized culture, we often go overboard in the personal accountability department.

To help counterbalance this cultural imperative, experiment with the following coaching request: “I ask that you revolt against perfectionism, productivity, and personal beliefs just for a day. You can take one item a day or do all three at once.” Be sure to remind coachees that they can accept, reject, or renegotiate a coaching request. You can also urge them to extend the experiment to a week, and then a month, since conventional wisdom contends that new habits take about twenty-one days to establish themselves.

Beyond sensitizing people to the seductive power of the mainstream culture, this experiment helps you get to know who you really are instead of who commercial television or your relatives expect you to be and who, consequently, you imagine yourself to be. As Mel Ash writes in *Shaving the Inside of Your Skull*, “who we really are is a process that can be unfrozen only by revolting against everything that conspires to tell us *who we are* and who we’re supposed to be.... Becoming yourself is the most revolutionary act of all.”

Becoming your authentic self is genuine personal accountability. Honor your imperfections, take time to smell the roses, and examine your limiting beliefs. Rather than needing to be “right,” be open to new ideas and savor the great ideas of the past. Give yourself space for the creative juices to form. If you are constantly “doing,” you will succeed in keeping creativity at bay. Accept yourself and others, flaws and all.

Like sins of commission as well as sins of omission, reflect on your actions *and* inactions. You are responsible for both. When people do nothing in the face of obvious social collapse and planetary ruin, they violate universally recognized principles of ethics and accountability.

Taking a stand on vital issues, accepting personal responsibility for future generations, boldly accepting our inter-connectedness, striving to become your genuine best self, and affirming, not denying, life are all valid ways of expressing personal accountability. When you are becoming who and what it takes, individually and collectively, to co-create a new life-sustaining culture, you are expressing the ultimate of personal and public accountability.

When we look outwardly at the world as a system, neat inner and outer compartments blur. We can say that one's loyalty is to the highest and best of one's Self. Yet, at the same time, because everything is connected, one's loyalty is to the whole of life or to "nothing less than a universal community," as Yale University ethicist H. Richard Niebuhr wrote a half-century ago.

**Strategy.** The final missing piece of the VAS Gap concept is strategy. You and your coaching circle will explore several layers of practical, nonviolent life-sustaining strategies to help you realize the vision you share for your own community's future. The Coach Five "strategy of replication" stems from the urgency of humanity's tight squeeze and the subsequent need for a multiplier effect *to spread* The Natural Step Framework and coaching mind-set globally as rapidly as possible. Chapter 12 elaborates on this strategy.

The compass strategy is a flexible approach that enables individuals, groups, communities, businesses, governments and non-governmental organizations *to apply* The Natural Step Framework using the compass metaphor as a tool pointing "true north"—in a sustainable direction. Chapter 6 integrates several specific elements of the compass, putting them together in a systematic way.

Besides these two overarching strategies, at the local level where sustainability will either take hold or fold, you can also invent other strategies and tactics as you go along. Tactics are short-term; strategies imply long-term. Besides the backcasting and the replication strategies, you may need other strategies to build community and public awareness locally.

For specific community projects and for connecting with friends and new acquaintances, you may want to get especially creative. Experiment with turning some of the coaching skills from Chapter 10 into strategies or tactics. For example, mindful questioning furnishes a good tactic for exploring the natural strengths of your group. It is far better to acknowledge and build on your strengths than to overlook them or get hung up on weaknesses.

Besides, your strengths suggest certain worthwhile strategies for your group to employ, especially if you match your strengths to the obvious human needs in your own community. By applying Max-Neef's Matrix from Chapter 8, you can find out what the most pressing human needs are locally. *How* might your group or your community best address them? *How* will you accomplish the

satisfaction of human needs in your corner of the world? Almost any “how” question, incidentally, moves you into the strategy arena.

“What” you will do—as in a list of steps—is not strategy, but rather part of your action plan and step-by-step itinerary. Strategy is the “overall how” you are going to produce a winning outcome of the vision you choose. For that strategy to succeed, you will have to take action. This may entail scheduling an appointment with the editorial board of your local newspaper informing them what you have learned about local human needs. To prepare for this meeting, you may want to role-play this action step before actually attending the editorial meeting.

Launching a project to educate the public, organizing a series of public workshops, gathering resources necessary for all your activities (including media contacts and financial sponsors), and developing a time line or flow chart represent other steps of your action plan. A budget, press releases, and fund raising projects such as organizing a benefit dance or concert using local talent might comprise other steps.<sup>251</sup>

Whatever your plans and action steps are, align them with the strategy you have chosen. Make sure that they are congruent with the vision and principles that guide you—especially the non-negotiable System Conditions of Chapter 5. Rev up your accountability juices and follow through on the steps. Be flexible, experiment, and change your strategy if people are bored with it or if it is not working. In a world of constant change and complexity, you may want to explore more than one or two strategies. Finally, make closing the VAS Gap fun and beneficial for your entire coaching circle.

## Farewell Footprint

The major task of human beings, Paulo Freire said, is *humanization*—the process of becoming more fully human by creating “humanly-enhancing culture.” This growth process includes being fully aware of our needs and aspirations, affirming people as persons (not objects), developing new visions of what it means to be more fully human, and awakening our self-determined consciousness to the imperative of developing strategies and tactics that will help us realize the vision.

Coach Camp evokes humanization and spurs us to reclaim our power over the creation and use of culture. The ripple effects of what we co-create in this generation will have a crucial impact on future generations. Moreover, Coach Camp provides a safe space to be wildly creative, strengthen relationships and skill-sets, expand consciousness, raise confidence levels, polish competence

and have fun all at the same time. It anchors what participants have learned so far about The Natural Step Framework. As a bonus, it may inspire you to start your own circles of five, thus rapidly replicating and spreading the vision wider and wider.

“Each one, teach one” was the mantra of the literacy movement. “Coach five, we all thrive” is our maxim for manifesting the continuation—indeed, the flourishing—of life on Earth.

We now turn to the meta-strategy of The Coach Five Project to help us do our utmost to realize our shared vision.

## CHAPTER 12

# The Coach Five Project

## Coach Five, Who Coach Five, and We All Thrive

*Behaving as part of a coordinated group is sometimes a life-or-death matter in which the slightest error—or the slightest reluctance to participate—can result in disaster for all.*

—Elliott Sober and David Sloan Wilson  
*Unto Others: The Evolution and Psychology of Unselfish Behavior*

*The truth is that, given the right circumstances, from no more than dreams, determination, opportunity to learn, and liberty to try, quite ordinary people consistently do extraordinary things.*

—Dee Hock

### **Foothold**

From the Tight Squeeze around humanity's prospects to Coach Camp where we practiced coaching to open up the sides of the metaphorical funnel for all to thrive, we quite ordinary people have undergone an extraordinary trek. While this is the last chapter, this is just the beginning of your real life adventure. Still in store for you is the Coach Five Project filled with positive action steps, joy and ongoing strategy. Sustainability is not a destination, but a splendid spiraling journey.

Earlier legs of our journey spelled out the basics for coaching others to discover what they need to know to share the framework of sustainability and how they need to grow to evoke the spirit of self-determination. On this leg of the journey, you will discover the steps for establishing coaching circles. They will play major roles in bridging the gap between our unsustainable present and a harmonious future that works for everyone. Here you will find ideas for

selecting the first five people you will be coaching, suggestions for managing your coaching schedule, tips on operating your coaching circles and sessions, what fieldwork to assign, and abundant mastery questions.

We will address the timing of creating new groups. That is, when participants are ready, they can each start a new circle and replicate the process, super-exponentially spreading the vision of a good life for all life, and everyone's great-, great-, great-, great-grandchildren. That is our multiplier effect, plain and simple. Its strategy is admirably straightforward: You coach five. They coach five. Those in turn coach five, and so on until we all thrive.

You do this voluntarily—you do not charge for your services. You are a “servant” of the vision. In the beginning, you may only serve the vision for a few hours each week. As you integrate the principles into your life and work, you will start to align with and serve the vision more and more. Your coachees, and theirs, turn around a few months later and do the same. And so on as long as the process can continue. At the same time on every continent, others are cultivating this process, all focusing on realizing the vision. Bear in mind, humanity can be only as great as the vision that guides us.

Launching a global project of ordinary citizens to *coach* their communities through a vital social transformation is not completely new to human history. The transition to agriculture probably entailed an ancestral form of coaching. Ours, however, can take place more rapidly. And, because of unknown thresholds and potentially lethal mega-interactions, it must.

Lo, many of us have waited and waited for *someone else* to do this work. Usually the so-called experts. Others have expected technology to save us. Well, here is a news bulletin. *We are* the “experts”... in our own lives and communities. Moreover, the technology is at hand. It may not be quite what we expected: The “appropriate technologies” of The Natural Step Framework and Life Coaching have emerged just in time. Add the technologies of the Internet, telephones, and electronic or print publications, and we can orchestrate solutions super-exponentially.

The need for an undertaking like the Coach Five Project is enormous and multifaceted. First, in the face of our collective challenge the Project fulfills *your* need-to-know what is happening and how you can help. This is not the time for authorities to protect the public from “panic.” It is time for the public to know and to act. It is time to do our utmost to outwit the worst projections and manifest the best our species can render.

Related to the first is the need to sway world public opinion in favor of sustainability, giving us an advantage in our race against time. The Project has the potential to influence not just world public opinion, but also the public

spirit worldwide as it sparks a rebirth of engaged citizenship. Then, the ever-present need to level the proverbial playing field may get a boost as we integrate socio-ecological factors into the process. Finally, there is the need for cross-fertilization between professions and disciplines. Since the stretching of perspectives and systems thinking are expected outcomes of participation, this need, too, can be satisfied.

Serving as an operating manual for the rest of the book, this chapter outlines the “Concept” of the Coach Five Project mentioned in Chapter 7 in connection with designing “chaordic” (chaos + order) organizations. It shows how your relationships embrace the Purpose (to co-create a healthy, prosperous, and flourishing future for all through coaching others to apply and spread The Natural Step message) and Principles (the System Conditions and the sustainability coaching principles). The skill set of facilitation from Chapter 10 will help you design arrangements and responsibilities that your participants trust.

This Chapter explains how to build the Structure (coaching circles) and attract the ideal People into your group. Finally, there is plenty of creative grist for the Practice mill, which you and your coachees may wish to adapt to your own local circumstances. Stay true to the System Conditions. They are the keys that safeguard our shared future.

One more preliminary note is necessary. Because the Coach Five Project is new and has not previously been tested on a scale as large as worldwide social transformation, you are part of an exciting pilot test in which your pioneering and creative participation offers you an *opportunity* to:

- learn a great deal about yourself, others and the world
- enhance and enrich your relationships
- build a supportive and caring community
- become articulate about the issues of sustainability
- use new coaching tools and skills
- expand your horizons and interests
- explore new ideas and ways of being and becoming
- transform yourself and others
- be a catalyst in transforming society
- make a positive difference in the world, now and for decades to come
- derive joy and meaning from all of the above

I use the word *opportunity* deliberately, for the alternative may turn out to be widespread crises, or worse. Only you can make choices for yourself. When you choose to participate, you become accountable to yourself (and future generations). *You* are responsible for doing this vital work—no one else can do it for you. This is responsible self-management—one of the benefits of coaching.

Approach this project sincerely and with care. There is much at stake here. When you choose to coach others about the planetary issues we face together at this crucial time, *you become a powerful catalyst, an advocate for a humane and sustainable future*. Those you coach in turn touch others, and then others, until we have a world alive with the intention of a magnificent prospect for humanity. This is historic work. Reclaim your power to co-create a better world for all. Relish it!

## Finer Focus

Imagine that you carve out two to five hours a week for six months to participate in the Coach Five Project. Much of your television viewing time, for instance, is basically sterile space in your life. Surely, as the creative force in your own life, you can re-rank your priorities and from the 168 hours we each have in a week you can capture a few hours to invest in yourself and humanity's prospects.

Suppose ordinary people across your community, state, nation, and planet also participate in the Project. Imagine further that engaged citizenship instinctively appeals to particular numbers of these participants. Collaborative spunk, caring community and co-creation so profoundly move them that they continue to engage public life and sustainability beyond the initial six-month period.

Picture humanity's prospects improving for generations to come because of these simple gifts of time offered by everyday caring people around the world. In a nutshell, this is what the Coach Five Project intends to manifest in the world.

How we will accomplish this in its entirety encompasses the three-part meta-strategy that embraces the brilliance of The Natural Step's easily understood framework, the magic of Life Coaching as a delivery system, and the multiplier effect of the Coach Five Project. Your coaching circle will distill and distribute the resulting vital essence of this approach in unique ways in your own community. Others elsewhere will be manifesting their unique outcomes.

Indeed, it is the thesis of this book that sustainability will either take hold or fold at the local level. Ordinary people are fully capable of understanding

both The Natural Step Framework and Life Coaching. Before sustainability has even a slim chance locally, though, you and your friends and family will have to overcome awareness deficits orchestrated by a commercialized culture that puts shopping ahead of engaged citizenship.

You and your coaching circle participants will need to discern the complexity of the challenges our species faces and learn the skill sets and tools for solution creation in your community. Use this and other chapters to guide you. In addition, you can share your experience or check out our Frequently Asked Questions on our web site at [www.coach5.net](http://www.coach5.net).

Until a full awareness of our shared dilemma reaches a critical mass in communities on every continent, most sustainability initiatives will have little meaningful impact. To complicate matters more, we find ourselves in a risky race against time. Hence, *reaching enough people and reaching them rapidly and profoundly presents an enormous challenge.*

The Coach Five Project embraces that challenge and increases the odds for a just and sustainable future for all. Designed to attract a critical mass, the Project makes possible the prompt and effective spread of the principles, guidelines and steps necessary for co-creating a life-supporting future. Through its multiplier effect, it accelerates and replicates the strategy in such a way that within less than a generation we ordinary people can co-create extraordinary results on our planet.

In that spirit, I ask that you invite people you know to unite in becoming “leaderful” in your own communities, beginning in a coaching circle you organize *now*. The gap between where we presently are as a species and where we want to be in the future widens intolerably on a daily basis. Right now the odds are quite good that we *can* bridge the gap using the multiplier effect of the Coach Five Project. The slightest reluctance, Elliot Sober and David Sloan Wilson write in *Unto Others*, may result in disaster for all.

### Selecting Your First Five Coachees

On this noble journey, among your first tasks is the selection of your collaborators—the five people you will be coaching. You and your significant other may want to invite two other couples to participate in your first coaching circle. If the couples have children, the oldest ones can keep the younger children occupied in another room for a couple of hours while the adults meet each week. It will give you an unduplicated opportunity to build your circle of friends. Whether you are single or part of a couple, the entire process will work best if you choose people who are *coachable*. Besides being friends or co-workers or neighbors you enjoy, you’ll want them to be

- conscientious about showing up on time. Are these persons you can count on to be fairly punctual? When you have made plans with them in the past, have they shown a pattern of tardiness? Slowing down or sabotaging the process is not sustainable
- open to considering new ideas. Do they think for themselves? Or have you noticed beliefs limiting them in some way? Naturally curious people energize the process
- willing to try different ways of doing things. Are they know-it-alls? Are they willing to change self-defeating behaviors? Inflexible people out to prove something or be right all the time will not be an asset to your group

Generally, *the least coachable* are people whose hearts and minds are closed to new ideas and new ways of doing things. When you are first starting out, you may encounter high emotional costs and burnout if you select people who tend to be extremists, cynics, or true believers, for example, in modern technology as the supreme solution to just about all problems. Often the most open to changing “the paradigm” and themselves are people who have collided with a callous organization or lost their jobs through layoffs, downsizing or some other insensitive yet common social mishap.

In any case, people who are eager to experiment with more humane ways of doing things are ideal possibilities. Your best bets are people of all ages and backgrounds who fall into the Cultural Creative value cluster. These folks enjoy novel ideas and non-linear thinking already. They like alternative notions and probably have heard of coaching. They already care deeply about a sustainable future and will bring joy and meaning to the work you do together.<sup>252</sup>

The following checklist—“Am I a Cultural Creative?”—is helpful in discerning which of your friends will be most open to participating in the Coach Five Project. Remember, around fifty million adults in North America and eighty to ninety million in Europe are Cultural Creatives. This “integral consciousness” is already planted in many other areas of the world. Consequently, there are bound to be plenty of Cultural Creatives available for the Coach Five Project. Most of them, however, feel like they are alone in their values and have no idea that their values align with a growing cluster of millions of everyday caring people. For that reason alone they will welcome a chance to dialogue with kindred souls.

Keeping the Cultural Creative characteristics in mind, review the names in your address book. With each name, ask yourself if you would enjoy a deeper relationship with that person. Consider whether s/he would likely follow through

### Am I a Cultural Creative?

*You are a Cultural Creative if you can check off six of the following statements as true for you:*

- I am concerned about health for ourselves and the planet
- I honor and respect the feminine perspective
- I am serious about spiritual searching or coming from a spiritual perspective (about 75 percent of Cultural Creatives agree)
- My community is an important part of who I am
- Personal growth and evolution are important to me
- I honor alternative forms of medicine
- I want to live amicably with others and lightly on the earth
- I want to slow down and savor life instead of running frantically to keep up
- I want to rediscover the creative and spiritual urges I set aside while juggling jobs and family and pursuing the good life
- I have a broad multicultural / ecumenical view
- The idea of reclaiming the power relinquished to political, social, religious, and medical institutions and reinvesting it in self, family, and community appeals to me.
- The integration and healing of opposites in our national life is a vision with which I connect.

with coaching others later when it is time to form new coaching circles. Make a list of likely candidates.

Obviously, you can also include people who are not in your address book: people in your neighborhood, at work or in other activities, people you enjoy being around or people you'd like to know better, such as elected officials, a local librarian, or your children's educators. Use this opportunity to enrich your circle of friends and expand your community. Review the previous paragraphs in this section and decide whether the people on your list fit most of the suggestions. Narrow your list down to five, saving a few alternates in case someone chooses not to participate at this time.

Before you contact the people on your final list, write down a few notes as reminders of what you want to cover in your initial conversation. Think of a talent or attribute each person has that would be beneficial to the Project and jot it down beside each name. During the course of your conversation, you can acknowledge that person's special gift.

Next, decide whether to call the people on your list, talk to them face-to-face, or write them a brief letter or email message. A few points to bear in mind and share during the conversation: the name of the project (Coach Five, We All Thrive); it's free, voluntary, and not associated with a political party or a religion. Share the benefits listed earlier in this chapter.

Also, tell them your estimate of the time involved each week. Group meetings, if you choose to go the coaching circle route, will probably run between two and three hours for one weekly session, depending on how you choose to structure it. If you decide to use the one-to-one telephone format, then you can estimate one 30 to 45-minute weekly telephone call with each participant. Remember to stress the possibilities (see the next section), acknowledge their talent and ask if they are interested or have questions. Set up a time for your first meeting or session. Thank them.

Keep your list of names handy until you finish reading this chapter and are fairly familiar with the book. By then you will be able to articulate the Purpose, Principles, and Concept in a way that attracts ideal People to your coaching circle (the Structure).

### Stress the Possibilities

Clearly, certain people do not see, and have probably never had the opportunity to see, the far-reaching possibilities of a sustainable society. Helen Keller's insight speaks poignantly to such states of mind: "No pessimist ever discovered the secrets of the stars, or sailed to an uncharted land, or opened a new heaven to the human spirit." Although she was physically blind, her spirit was farseeing. In our work together, we need to express optimism about our future and stress the possibilities.

For that reason, your first assignment is to become aware of numerous sustainable initiatives unfolding in the here and now. You can then authentically present the whole issue of creating a sustainable society as a real possibility. You will become articulate in framing "the problem" as an opportunity. In your coaching dialogues experiment with ways to shift the focus away from "the problem" as catastrophe (or blaming, or doom and gloom, or ideology, or apocalypse) to the possibilities, the opportunities.

**Indications of a Positive Shift.** Tens of thousands of positive sustainable initiatives are taking place in the world today. Many are indicators worthy of sharing with the people you call. Following is a list of a *small fraction* of the positive endeavors unfolding around our planet:

- the Voluntary Simplicity movement

- the Public Broadcasting System's television documentaries, "Affluenza," its sequel "Escape from Affluenza," "Trade Secrets"—an exposé of the chemical industry, and "Earth on Edge," about solutions to serious ecological dilemmas we face
- high school or college teach-ins and study groups on the nature and consequences of industrialism and the global economy
- educational events on the ecological costs of consumerism and overpopulation
- the work of thousands of individuals and organizations such as the World Watch Institute, the Rocky Mountain Institute, Northwest Earth Institute, Sustainable Obtainable Solutions
- universities offering a wide range of courses from natural resource management to ecological economics
- community efforts worldwide on restorative justice as an alternative to more prisons
- dispute mediation or conflict resolution
- sustainable indicators projects
- bike paths, smart growth, and urban sprawl solutions
- community composting and recycling projects
- rising demand for organic non-genetically engineered seeds (no Frankenfoods, thank you!), community gardens and community supported agriculture (CSA)
- local currency exchanges
- the shift toward public transit, renewable energy, and placing land in public trust for ecological purposes above and beyond the national and state park and forest systems
- affordable housing, intentional communities, co-housing, local ordinances allowing green building programs including straw bale construction, rainwater collection systems, compost toilets, and gray water usage
- a renewed interest in alternatives to modern medicine and self-recovery (physical and psychological)
- a resurgence in learning of all kinds at all ages—lifelong, distance, organizational, communities of practice, and study circles

The list keeps growing. Add your own points as well. For more information on these indicators of positive shifts in the world, use an Internet search engine, check your local library, and see the resource section at the back of this book.

**Visionaries.** As people look forward to solar-powered robotic lawn mowers, non-polluting electric vehicles, and a healthier future for all, the more astute oil corporations—Royal Dutch Shell and British Petroleum (BP-Amoco)—are implementing visionary plans to phase out fossil fuels and focus on renewables. In the summer of 1999, the venerable *Harvard Business Review* published a major article on “Natural Capitalism.” It argued for enlarging the way we perceive wealth and prosperity by replacing mere monetary measures of growth and development with more complete measures that take into account the role of living systems in our basic economy. A year later Paul Hawken, Amory Lovins, and L. Hunter Lovins published a visionary book with the same title, which sparked widespread enthusiasm and optimism and accelerated the new sustainable industrial era.

Examples of positive visions of the future abound. Appealing to people on a spiritual path is a new “World Vision,” described by James Redfield in *The Tenth Insight: Holding the Vision*. Author of the best-selling book, *The Celestine Prophecy*, Redfield maintains that it is this vision—“the future that we all are here to enact—that will motivate *millions of visionaries* to solve the world’s great social problems of pollution, crime, war, and poverty.” [my emphasis]

He says further that the vision will motivate people “to establish this new spiritual culture in our physical plane.” Not all Coach Five participants will appreciate this viewpoint, so use your best judgment around the spiritual aspects of coaching. With those who are comfortable and open to it, spiritual growth is a valid topic for a coaching conversation, especially when linked to sustainability. Redfield, however, probably didn’t have coaching in mind when he concluded: “To be achieved, this World Vision must be remembered and communicated by increasingly more people. We must uplift everyone, help them to remember, treat no one as an enemy. We must each make a choice about the future we envision. And we must hold this Vision to save our world.”

Joanna Macy has been holding the vision for literally decades. Best known for her classic, *Despair and Personal Empowerment in the Nuclear Age*, Macy co-authored a subsequent book with Molly Young Brown, *Coming Back to Life: Practices to Reconnect Our Lives, Our World*. It inspires us to remember: “We can know once again that we are related to all things.... we are laughter of a child, the strength of compassion, the gathering under the full moon, the shiver of poetry, the melody of a song not yet sung. We are the part of the world that

can gasp with wonder, be moved to tears, and imagine what can come. We are the witnesses and worshippers, the warm brainy ones with clever hands, ones who can love and who can destroy.”

Visionaries are vital. Yet dependence on visionaries alone suggests a long, slow process and not much action. Social change requires more than good intentions. We do not have the luxury of a leisurely transition. That’s where the Coach Five Project and The Natural Step Framework come to the rescue.

**The Promise of The Natural Step Framework.** When I first realized how truly practical The Natural Step Framework was, I was overjoyed. One of the most positive, brilliant, and sensible ideas to come along in years, the framework is also rigorously scientific. Like many others who have been drawn to making a positive difference in the world, I had long been on the lookout for a genuinely usable strategy for humanity. Most every “solution” I examined turned out to rely overmuch on the experts, ideology or some other controversial factor. As we know, controversy usually leads to more problems and arguments, rather than solutions.

The Natural Step Framework is not controversial. It is difficult to argue with its strategy and principles because they are based on voluntary implementation, consensus building, and a solid scientific consensus. Moreover, the non-negotiable System Conditions make sense to anyone who takes the time to understand them. This is a major consideration in your coaching. To make a positive difference in your coaching circle and in the world, review Part I until you have gained mastery in the concepts, System Conditions, and principles. You will be far more effective with your coachees and in your community.

System Condition Four of The Natural Step, that of meeting human needs worldwide with justice and fairness, is not found in other scientifically-based sustainability initiatives. For that reason, The Natural Step Framework appeals to almost everyone. Do not worry about critics on the fringes. As Sober and Wilson point out in their scholarly book about the evolution and psychology of unselfish behavior, *Unto Others*: “Nonfunctional and even dysfunctional behaviors can ride along with adaptive behaviors as hitchhikers.”<sup>253</sup>

One of the remarkable aspects of The Natural Step Framework is its simplicity without reductionism. It is simple enough for non-scientists to understand. Yet, it does not lose the complexity of the science and systems on which it is built. Thus, ordinary people can “get” why the System Conditions are non-negotiable. They are able to grasp the fundamentals of how the cycles of Nature operate. And, perhaps most remarkable of all, built into the framework is a regard for the wisdom of quite *ordinary people* who know best how to apply the framework to their lives and work. Dee Hock’s words of wisdom are worth

repeating here: “given the right circumstances, from no more than dreams, determination, opportunity to learn and liberty to try, quite *ordinary people consistently do extraordinary things*.”

You have probably worked for an organization where consultants were paid handsomely to come in and “transform the culture” of the organization. In most change initiatives, consultants do all the work. They gather the information, analyze it, write the report, and impose the rules for whatever solution is being furnished. This process eliminates the very people who will be there long after the consultants are gone.

Not so with The Natural Step Framework. It gives plenty of room for everyone involved to buy into the idea, brainstorm, come to consensus, and take action within the constructs of their own wisdom. It respects the expertise of ordinary people and their abilities to draw their own conclusions about how to design their lives and work in harmony with Nature’s cycles and the conditions that must be met for sustainability.

With that awareness, many breathe a huge sigh of relief, realizing—perhaps for the first time in their adult lives—that sustainability is a genuine possibility for the world. Such a realization will galvanize all of us for meaningful action.

### The Overall Strategy

Now, indeed, is the time for momentous change. Now is the time for *ordinary people* to enact the sustainable vision in their personal existences by *making the time* to get positively involved around the dicey socio-ecological situation our advanced industrial society has spawned. Barring a sudden change of heart on the part of the elite establishment, coaching others to coach others will most likely be *the fastest way* to amplify the message of sustainability and get the essential numbers of people into meaningful action to induce positive change.

When I had the epiphany that led to this book, I was pondering what resembled a life-or-death matter: how to spread the word about The Natural Step Framework *quickly enough* to make a difference in the world. While the framework spread relatively quickly in Sweden, a far more homogeneous society than most countries, it seemed to me that it was not moving rapidly enough in North America and most other places.

It suddenly hit me that if I coached five people to coach five people each on The Natural Step Framework that would create thirty-one coaches each capable of coaching at least five more people. This would bring the total “coach five” coaches to 125. And, if those new coaches each coached five more people,

the number of active “coach five” coaches in the world would grow to 625. And so on and on. The multiplier effect would be free to begin to work its magic, something like the following:

1 “Coach Five” coach	
coaches	5 new “Coach Five” coaches who
coach	25 new “Coach Five” coaches who
coach	125 new “Coach Five” coaches who
coach	625 new “Coach Five” coaches who
coach	3,125 new “Coach Five” coaches who
coach	15,625 new “Coach Five” coaches who
coach	78,125 new “Coach Five” coaches who
coach	390,625 new “Coach Five” coaches who
coach	1,953,125 new “Coach Five” coaches who
coach	9,765,625 new “Coach Five” coaches who
coach	48,828,125 new “Coach Five” coaches who
etc.	

Figure 12-1. The Coach Five Matrix

Realizing that not everyone would coach five others down through the matrix, I was aware some people might drop the ball—who knew how many? Still, the idea kept stirring my heart. The above matrix represents the *full* arithmetical possibility of only one coach’s action. Imagine if a thousand or even ten thousand individuals were to begin their own matrix! Then drop-outs and slackers wouldn’t matter so much because public opinion would weigh in mightily. In any event, in the long view of group selection and behavior, to reiterate Sober and Wilson’s words: “Nonfunctional and even dysfunctional behaviors can ride along with adaptive behaviors as hitchhikers.”

While Figure 12-1 above shows one notion of where this can take us, the matrix concept helps people to *see* that *we can do this*. It *is* possible. The Coach Five Project *can* reach millions of people within a relatively short period of time with the sustainability message and vision. And, if only a fraction of the people who identify with the Cultural Creative value cluster initially commit to this project, the energy will begin to spread and along with it the well-timed idea of *ordinary everyday caring people shaping the future*.

With each new epidemic and extraordinary weather event, the numbers of people who care about a healthy and flourishing future are growing. The numbers will grow *even faster* when *you* take time to learn how to coach five others and then *do* it.

### What to Focus on First

The skills and abilities you need to focus on for social change work and for coaching people about The Natural Step Framework depend on where you are on your life's path and how familiar you are with the ideas contained in this book. Some of you will be able to begin the Coach Five Project as soon as you read the book. Others will want to work on personal growth or spend some time expanding your strengths, talents, and unique advantages so that you can make the best use of the knowledge and tools you discover here. Generally, you can accomplish most of this in a coaching circle. For that reason do not delay too long before you initiate your own Coach Five Project. Living systems have waited too long already!

You may benefit from a personal coach of your own while you prepare yourself as a "Coach Five" coach. The Appendix contains resources for locating personal coaches and formal coach training programs. The coach5.net web site has further resources.

You may want to sharpen your socio-ecological awareness. That is, become more conscious of how groups of people influence other people and the Earth's living systems. Make no mistake about it, our ecological problems are really social problems. The social, economic, and ecological systems in which our very lives are imbedded generally are totally missing from routine human development approaches, leaving many people with the impression that social and ecological responsibilities are of little or no concern. Such a void does not enhance humanity's prospects or your own.

You may need to put an edge on your grasp of economics. Especially in the United States, the mainstream media, government at nearly all levels, and business and commerce tend to put economic results above people and the planet. The U.S. media was late telling the stories of global warming, the emergence of unlabeled genetically engineered foods, and the shameful story of the summer of 2001 in Genoa, Italy. The news barely covered the Multilateral Agreement on Investments, the forerunner of the World Trade Organization. All of these have a tremendous impact on our odds of becoming a sustainable society with a secure and sustainable economy. Creating an alternative to corporate domination of the planet is part of the sustainable path. It is not an either/or proposition. We can have both sustainability and flourishing economies.

You may need to co-create a future focus. Using newer techniques than forecasting—scenarios and backcasting, you and your coachees will explore how *we* can shape the future. Focus on the future can be tricky because we live in the present and the future cannot be predicted. We can, however, make effective choices today that enhance and create a better tomorrow. You can use

the Life Requirements Checklist as a guide to your own lifestyle choices and hence your own personal future as well as that of your community.

### **First Steps as a Coach Five Coach**

For people who want to take The Natural Step initiative into their communities, the knowledge base is broad and diverse. Along with your coachees, you are expected to know or be learning many dynamics that come into play as we coach others to shift from an unsustainable society to one that is healthy, thriving, and prospering. In addition, you will need to handle other rather mundane items, like scheduling coaching sessions and determining what materials your coachees need to review each week.

The coaching sessions can be quite flexible. You can have separate telephone calls each week with each of your coachees and carry on quite well without using any fossil fuel whatsoever and still “attend” the coaching sessions. Three-way calling allows you to talk to at least two others at a time—even more with creative use of extensions. These calls can run between 30 to 45 minutes. Depending on how much preparation you feel you need, your total time commitment for five apprentices can run less than five hours a week, probably more at first.

An alternative to the coaching sessions via telephone is a group session each week. The coaching circle format that works well for most people is a weeknight or a weekend afternoon. Determine how long you want these sessions to last. You can keep them to about two hours and still give everyone an opportunity to dialogue and ask questions. A three to four hour session with a fifteen-minute break may be ideal if time allows. You can meet with all your coachees at a public library community room, a favorite cafe, your backyard, a park, or each other’s homes. You can create a combination of group and telephone sessions. Once you have selected your coachees, you will have a good idea about how compatible they are and whether group sessions will work for them. Experiment. You will soon discover which coaching format works best for you and your crew.

### **A Few Ground Rules**

Whether you use telephone or group sessions or a combination, you’ll want to set a few ground rules, which incidentally may also test the responsibility level of you and your coachees.

- First, ask your coachees to make their time for the coaching circle a priority and to let you know a day ahead of time if they are not going

to be able to make the session that week. You can reschedule a call for another time that same week, if convenient for both of you.

- Second, make it clear to your coachees that this is a *volunteer effort* on all your parts. *There will be no fees charged by you, or by them* when they begin to do “Coach Five” coaching. Expenses for refreshments can be shared.
- Third, there needs to be a commitment that each participant comes to the session prepared. To use the time well, as the first facilitator you will have reviewed materials that you do not yet know by heart. Your coachees will have done the fieldwork you assigned at the previous session. This builds the responsibility muscle, enhances learning, and moves the process forward faster.
- Fourth, in any session, and especially in groups, everyone takes turns speaking—no one monopolizes the conversation. Refer to Chapter 10 to refresh your memory on the best ways to handle group get-togethers and meetings.
- Finally, each participant is responsible for his or her learning. No one will be allowed to blame other people or circumstances for self-inflicted irresponsibility. And, you as their coach, want to remember to encourage your coachees by acknowledging their sincere efforts, wise choices, and any other positive steps they take. Don’t do puffery, though. As Adlai Stevenson used to say, “Flattery is all right so long as you don’t inhale.”

### Fieldwork Suggestions

With regard to determining what materials your coachees need to review each week, it is good to remember that each of your coachees is a unique individual with his or her own personal life experiences, interests, and habits. Therefore, assigning the same fieldwork to each person may or may not make sense. Ask in the coaching circle setting. Below, in more or less organic placement, are suggestions for fieldwork assignments.

- Make a notebook for your Coach Five jottings, new understandings, ideas, and thoughts. Begin it by writing about how your life would be different if
  - there was a fair use of natural resources worldwide, and
  - justice and fairness were valued by everyone in a way that protected resources like the rainforests or fresh water that we all need for long-term survival

- You can have everyone share his or her responses at the second gathering. Or, if you are using the telephone format, you can ask your coachee to share with you in a call.
- Spend some time thinking about the difference between your wants and your needs. In your notebook, list ten of your wants that you feel are unsustainable. Choose one unsustainable want to eliminate from your life and purge it this week! Write in your notebook how that makes you feel.
- If you or your coachees cannot afford to buy this book, go to the library and check it out. If the library does not have it, request it through Inter-library loan. The more requests for a book, the more likely the library will purchase it.
- Read the Preface and Chapter 1. In your Coach Five notebook, jot down questions or insights. Do the same for other chapters.
- Interview three adults and three teenagers, by telephone or in person. Ask them: What stops us from being responsible about the present condition of our world? What steps are you taking to make a difference? If they want to know what you mean, talk about the Coach Five Project. Jot down what you learned from this experience and share with your coach or coaching circle peers. The people you interviewed may make good candidates for future coaching circles.
- Call the mayor of your community and ask what positive things the community is doing to promote a healthy future for children. Summarize the conversation in your notebook.
- Visit a home gardener and ask what prompted them to garden, how the world would be different if more people gardened, if they use pesticides or weed killers on their crops. Let your curiosity guide you and ask them other questions about growing food at home and being self-reliant. Summarize the conversation in your notebook.
- Clip articles from your local paper showing your community's compliance with or violation of The Natural Step System Conditions. Put the clippings in your notebook. Do this on a regular basis for a month. If you find you are learning a great deal more about your community than ever before, continue the practice. Expand your learning and observations globally.
- Watch one evening of television and describe in your notebook the commercials that encourage a sustainable world. How many are there?

What does that say about our prospects? Rank the commercials that influence people to violate one of the System Conditions from minor violations to grave. How about the TV shows—do they foster aspects of a sustainable world? In your notebook, write down your feelings about this experience, especially any solutions you glimpse. Share your insights with your coach or coaching circle.

- Take public transportation to work one day this next week. If there is no public transportation in your community, see if you can arrange a carpool two times a week. Summarize the experience in your notebook.
- Start a container garden for salad makings. Your apartment balcony may work well, or try a sunny windowsill. Ask for a few cups of dirt from a neighbor who gardens organically—that way the soil is more likely to be safe. If you plant fourteen lettuce seeds every two weeks, you will have fresh organic lettuce on a daily basis. See the Appendix for organic seed sources. In your notebook describe the taste compared to produce transported hundreds of miles to your grocer.
- Cut your garbage in half. Hint: you will have to cook more food from scratch. This will save you money and be healthier. Write in your notebook what you've learned about yourself.
- Plan social events that cost next to nothing. Be creative. Meet at a place within walking distance. Summarize the experience in your notebook.
- Switch your electric utilities to a “green electron” supplier, if available. Your bill will remain the same. Write about your adventure in discovering whether one exists in your region.
- Have a meaningful conversation with your significant other about the unsustainable ways you spend money. Ask for support in eliminating your more unsustainable lifestyle choices. Summarize the experience in your notebook.
- Attend a City Council meeting (or a County Commission meeting). Notice where the city complies with the System Conditions and write a congratulatory note to appropriate individuals.
- Write a letter to the editor of your local paper concerning a local sustainability issue.
- Reflect on the question: What do you see happening in your region that indicates movement toward sustainability? Write about your insights in your notebook.

- Work the Life Requirements Checklist. This is an on-going process. Ask your coach about any items that don't make sense to you.
- Work with your coaching circle to create an action plan for how you are going to simplify your life and live more in harmony with the System Conditions and the natural cycles. Ask your coach for encouragement.
- Re-read a chapter in this book. In your notebook, describe how you have grown in your understanding of sustainability or any special insights you have had as a result of learning about coaching and The Natural Step Framework.
- In your notebook, without looking at notes or this book, write about the compass. Compare what you have written with the main points in Chapter 6.
- Review the central concepts of The Natural Step Framework two or three times during the week and be prepared to engage in a role play about the compass in your next coaching session.

And so forth. The purpose of the fieldwork is to reflect on your personal situation within the context of the larger social system and to move you into action learning. This in turn encourages you to see how everything is connected and how each of us matters. Many of these fieldwork experiences help to hone your skills in delivering the sustainability message to others.

Before you begin your first session, tackle some of the above fieldwork yourself. Once you have established your coaching circles, encourage your group to create fieldwork that fits your locale. If your coachees prefer to study real issues and dialogue about them, rather than making lists or doing checklists, meet them half-way. Explain that the checklists are valuable learning experiences in their own right. It is also a matter of the coach's integrity to have worked the checklists before asking their coachees to do the same work. If coachees have particularly brutal schedules, be flexible and give them more time to complete their fieldwork. *And*, remind them of our collective race against time.

### Preparing for the Coaching Session

Whether you are the coach or the coachee, you will get much more from your time together when you are well prepared. If you choose to gather only as a coaching circle, review the facilitation skill set in Chapter 10. Each participant contributes to building the session agenda, the fieldwork, and related responsibilities.

Through consensus your circle determines what will be expected of each participant. They may agree to use the Prep Form (see Figure 12-2) and share one or two items from it, role-play a participant's situation, or create a unique way to begin the group session.

If you have chosen to coach one-to-one, the coach takes on more responsibility for guidance. Nevertheless, the coachee has the option to accept, reject, or renegotiate any request from the coach. And, the coachee directs the agenda through his or her needs, questions, and interests.

One of the best ways for the coachee to prepare for the coaching call or session is to e-mail the coach an update or a filled out "Prep Form" a day ahead of time. If you do not have e-mail, you can spend the first few minutes of the coaching session bringing your coach up to date on the "Backdrop" aspects of your life.

Answering these questions saves time in the coaching call because there is little need for talking about most of the points once the coach has read or heard them. They serve as background for the coach and a progress report for the coachee.

Unless an item jumps out at the coach, like a red flag or something to celebrate, the conversation will not dwell on the backdrop aspects. It is not necessary for coachees to respond to every question, perhaps just those which feel timely.

The next set—the Forefront Questions—constitutes the basis for the coaching conversation, beginning with: What do I want to celebrate with my coach? And ending with: How do I want to use my coach during our up-coming call? The questions in between help the coachee respond effectively to the last one.

You can see that a coaching conversation might well range across a wide swath of topics because the conversation depends on what the coachee writes on the Prep Form. Your best preparation will be to bring all your skills and tools to the call (or session) so that you can listen creatively, ask mindful questions, and discern what shifts or action steps would be most meaningful now.

At the end of the call you will ask some of the "Concluding Questions." Only after the central conversation will you be able to suggest one or two appropriate fieldwork assignments. Then you will check to see if the coachee will commit to following through on those suggestions. Be prepared to suggest both reflection- and action-oriented homework. The last question (What did you find most valuable or useful during this session?) is important because it gives the coach immediate feedback, often on unexpected aspects of the call. And, it compels the coachee to think attentively rather than sleepwalking through the call.

**Instructions:** Respond only to the questions below that fit your present situation and send (e-mail or fax) this form to your coach 24 hours before your coaching session. Keep a copy for your records.

### **Backdrop Questions**

- What have I learned about myself, others and the world this week?
- What have I enjoyed? What have I found most gratifying?
- What actions have I taken? What else do I wish I had accomplished?
- What limiting beliefs have I discovered?
- What shifts have I made? What new insights have I had?
- How have my moods and energy been this week?
- How well am I doing on the Life Requirements Checklist? Where do I want to improve?
- What are the major things I have done to take good care of myself ?
- What have I done to enhance my work life?
- What have I done to enhance my public life?

### **Forefront Questions**

- What do I want to celebrate with my coach?
- How well am I getting my needs met?
- Where am I having difficulties (or victories) re-assessing and re-prioritizing my values?
- What feels most pressing?
- How well am I understanding and integrating the concepts of The Natural Step Framework?
- Where do I confused or overwhelmed?
- How well am I doing grasping the coaching knowledge base and skill sets?
- In what area do I need to have a bit of a nudge?
- What community or public projects feel most compelling?
- On what do I most need to focus right now?
- What is of utmost priority for me right now?
- How do I want to use my coach during our up-coming call?

### **Closing Questions** (Respond to these after your coaching session)

- What is the best homework for you this coming week?
- What have you promised to do or reflect on prior to the next session?
- What did you find most valuable or useful during this session?

**Figure 12-2. Prep Form**

## Expanding the Possibilities in the Coaching Session

An important maxim to follow *during* the coaching session is “Let the coachee’s voice prevail.” The session is about the coachee, not the coach. You may occasionally ask the coachee to say more. You may briefly sketch a distinction or pose an appropriate question. In the coaching circle format, too, dialogue focuses on the coachees, and especially on their questions around new concepts.

Your job is to help them tie what they learned from the fieldwork to The Natural Step Framework and to expand the possibilities so that they can begin to coach others about building a healthy and prosperous future. Answer their questions being careful not to monopolize the conversation. In many sessions you will focus on the possibilities for sustainability and coachee opportunities to make a difference, if for no other reason than to keep spirits up—the state of the world can get depressing.

One way of expanding the possibilities is to ask a deep, probing, forward-ing question—often with no “right” answers, such as “What will it take for society to stop violating the System Conditions?” Remember, avoid “why questions,” such as, “Why does society keep destroying the Earth?” or “Why does society keep violating the System Conditions?” Such questions can *narrow the possibilities* and put people on the defensive. “Why questions” also push us toward the “right” answer and linear thinking, stifling creativity.

You can emphasize the possibilities and evoke creativity with one of the following questions:

- “Imagine you could wave a magic wand and the world would be rid of violence, pollution, hate, greed, poverty, injustice, unfairness, and all the things we know create social havoc—what do you see we all had to say ‘no’ to? What would we say ‘yes’ to?”
- “What would happen in the world if ecological wisdom and true democracy were the standards we all lived by?” Or ask the question using any combination of the following: nonviolence, community-based economics, justice, fairness, responsibility (personal, social, global), and respect for diversity (religious, ethnic, sexual orientation, biological and so on).
- “I am curious. If you could transform the world, what three or four principles would be most important to you?” This question can, of course, lead to a discussion of The Natural Step principles, the sustainability coaching principles, and personal ethical principles.

- “Can you list ten things we ordinary people tolerate about our economic system?”

You get the idea. Ask questions that wake people up. Through your coaching conversations, encourage not just a sustainable vision, but also *meaningful action* to move us toward the realization of that vision. For, despite the doubters among us and the narrowing funnel, we still have a choice: We can follow the *no regrets* approach and choose to enlighten large numbers of people through coaching (who in turn do the same) or we can malingering while a random future unfolds.

It is also important that you stress the possibilities for those who have collapsed into a paralyzing mindset of despair. We *are* human, and we feel the pain for the world. Certain fieldwork experience, bad news, or just a general setback can throw anyone off momentarily. If one of your coachees suffers for more than a few days with depression over the state of the world, have them seek professional help. The ideal help, of course, would be an ecopsychologist or a therapist with training in ecopsychology.

Some of your coachees may need to be assured that *we are not doomed yet*. For many, experiencing the pain for our world is more than they think they can bear as they struggle to make ends meet, take care of their kids, maintain a paycheck, or just get through life’s normal challenges. Coach them to understand that *by blocking the pain*, as Joanna Macy and others suggest, they are preventing their own participation in the world’s attempt to heal itself.

You may want to ask your coachees: What do *you* see happening in the world that indicates that we are moving toward a healthier future for everyone? This is particularly helpful when the conversation turns toward despair. Be silent after asking a question, giving them time to come up with an example or two. In the event they cannot think of any positive signs, bring their attention to one of the indications of a positive shift on page 237. Pick out the ideas that touch you both and celebrate.

After a couple of months of coaching sessions, coachees are ready for more challenging questions. The coaching conversation can be quite thought provoking at this point, especially if you avoid simple yes and no informational questions. Instead inquire deeply into complex issues, using questions similar to these:

- What would society be like if it were well adapted to its environment?
- What do we mean by ‘the common good?’ What is noteworthy about the common good?
- Tell me about the compass. (See Chapter 6).

- Can you think of metaphors to use to get certain points across? How would you use them? What are some of the metaphors used in The Natural Step Framework? (The funnel, the tree and its branches for the principles and the details, the compass, and the molecular garbage dump are a few of the metaphors your coachees might suggest.)
- Tell me about System Condition One (or Two, Three or Four).
- How does backcasting differ from forecasting?
- In the context of The Natural Step Framework, what do we mean when we say we are picking the low-hanging fruit? How does that relate to a step-by-step itinerary?
- When we say that everything spreads, what are we referring to?
- What do we mean by “Nothing disappears?”
- What would lead anyone to say they are grateful for photosynthesis?
- How do plants create structure and order on our planet?
- Can we consume energy or matter? What do we consume? What do we mean by “there is value in order?”
- Tell me about the history of The Natural Step.
- What is “natural capital?”
- Name two large companies that are implementing The Natural Step Framework.
- What is your definition of sustainability?
- When we talk about the “ecological footprint” what are we suggesting?
- What is the difference between upstream and downstream?
- How would you explain “the funnel” in the context of The Natural Step Framework?
- What do we mean when we say “waste = food?”
- How can people use The Natural Step Framework as a decision-making tool? As a strategic planning tool?
- How do companies, communities, or individuals save money or gain a competitive advantage when they implement The Natural Step Framework?
- Tell me what we mean when we say that our environmental problems are really social problems.

- How would we know our society had become sustainable? What would some of the indicators be?
- In what ways are you ready to coach others in the Coach Five Project? Where do you need to focus more attention?

In asking these or any questions be encouraging and stress positive possibilities. Remember to come from a place of compassion and love. As the Dalai Lama says, “A positive future can never emerge from the mind of anger and despair.”

At most, you will only ask one or two of these questions in a single coaching session. You can also use these questions in your coaching circle to assess how ready participants are to branch out and start new coaching circles.

Toward the end of the call, make a request and acknowledge the coachee. End the session with the final set of questions on the Prep Form (Figure 12-2).

### **Concluding Your Coaching Relationships**

After several months of working with your coachees, they will master the material well enough to articulate the major points of The Natural Step Framework and feel ready to select *their* candidates for the Coach Five Project. Most teachers know that the best way to learn something is to take the responsibility to teach it. Thus, when your coachees organize their own coaching circles, they will really begin to learn the material.

When concluding your coaching circle or coaching relationship, ask your coachees what they found most valuable during your coaching relationship. This will help you grow as a coach and be even more prepared for your next batch of coachees should you choose to continue coaching others. Offer to be available to your first group of coachees if they run into difficulties down the road. In any case, arrange a way that you can remain in touch with each other. If you had group sessions, a monthly gathering, quarterly get-togethers, or annual reunions may be worth considering. There will be a reluctance to disband because of the close bonds created. To spread the vision, however, new circles are essential.

Endorse your coachees by sharing from your heart what touched you most about your experience working with them. Encourage them to remember how they are a gift to the world’s recovery and how they can scatter joy and inspiration. Acknowledge them in at least three areas where you have seen them grow personally, publicly, and sustainably. Remind them to re-connect daily with our shared vision of a sustainable future. Prompt them to stay in action—what we focus on, we become. And urge them to model the way for others through

their highest and best selves. Check in with them from time to time, especially on their birthdays!

If there are ever any questions you cannot answer, please write to us at [help@coach5.net](mailto:help@coach5.net) or check our Frequently Asked Questions posted at [www.coach5.net](http://www.coach5.net), our virtual clearinghouse.

Start over with a new cluster of coachees. You coach five, they coach five, we all thrive.

## Farewell Footprint

Humanity is on the road to a collective nervous breakdown—burned-out people, decaying communities, dysfunctional institutions—and that is only part of our predicament. Our species has emerged as the ultimate vandal of our planet's life-support systems: Our material and reproductive accomplishments in the last century now threaten not only our physical, emotional and spiritual quality of life in this century but also flirt with mass extinction—and our species is not exempt.

Unless we exercise a higher social intelligence, as physicist-philosopher David Bohm wisely counseled, and take rapid, meaningful and effective steps to thwart these dark challenges, our species may not survive. It is in everyone's self-interest to discover *what to do, how to do it, who and how to be and become*. The marriage of The Natural Step Framework and the delivery system of Life Coaching, crowned by the multiplier effect of the Coach Five Project, has an energetic chance of rapidly spreading such a higher social intelligence to a critical mass around the world.

Your individual commitment is vital to this endeavor. If you volunteer five hours a week for only six months, your efforts alone can spread within two years—assuming that everyone involved follows through with their own coaching circles—the coaching mind-set and the vision of a life-giving future to 625 people. Starting a new coaching circle twice a year for two years amplifies your personal impact to 2,500 individuals.

In the process, we all reclaim our right to determine together what we want to make of our future—personally, culturally, socially, economically, politically, and ecologically. Precisely because we care deeply about humanity's prospects, yet have not understood the complexities or what steps to take until now, the Coach Five Project is a boon. We do not want to be accessories to mass suffering, genocide, or the most hateful crime of all: our species' extinction. What we do want for our species and all life is an assurance that we can take positive steps to thwart the forces that push us toward the shadowy brink.

Not a dogmatic “answer” and yet an approach full of promise, The Coach Five Project embraces a people’s strategy for boosting humanity’s prospects. It starts modestly among everyday caring people like you and me. As our first circles quintuple in about six months, The Natural Step Framework and its vision spread and coachingsesque qualities strengthen more and more people. Meanwhile, we share our excitement and newfound competence with friends and relatives, many of whom choose to take part in their own communities. Everything spreads.

When thousands like us dare to scatter the seeds of a new life-sustaining culture, we will reach a critical mass of millions. Nothing can stop the momentum of our collaborative spunk, and within less than a generation, we—ordinary people—will have co-created an extraordinary legacy. A legacy empowering all stakeholders on the planet to determine what they together in their unique cultures want to make of their future. It will be a legacy of a good life for all life and everyone’s great-, great-, great-grandchildren: A promising prospect for humanity now and for a thousand years to come.

The stakes are as high as they have ever been in the history of humanity. When you coach five, ten, twenty, even fifty others about the issues we all face together aboard Spaceship Earth, you become a powerful champion for a life-giving future. Through the ripple effect of your stand, those you coach likewise become champions. As they assume their responsibilities, they spread the life-sustaining vision to even more people. And those people touch others, who touch others, until our world is replete with the core intention, higher social intelligence, and conscious actions of everyday caring people co-creating a humane, joyful, just and sustainable future for all.

May the highest be done.

## Epilogue

*We will not live by rules that are robbing millions of their lives and medicines,  
their seeds, plants and knowledge, their sustenance and dignity.*

*We will not allow greed and violence to be treated as the only values  
to shape our cultures and our lives...*

*We know that violence begets violence, fear begets fear, peace begets peace and love begets love.*

*We will reweave the world as a place of sharing and caring, of peace  
and justice, not a market place where sharing and caring  
and giving protection are crimes.*

*We will shape new universals through solidarity, not hegemony.*

—Vandana Shiva

We are valid stakeholders, all six billion of us, and counting. With our throngs, we literally embody the promise of generations to come, the future history of our species. We represent the passion, the moral imperative, and the leverage. We *are* the leverage.

Our shared intent and collaborative spunk are more potent than we can imagine. All we need to do is raise the lever, together. Rapidly. Meaningfully. Effectively. Together we can pry open the walls of the metaphorical funnel and co-create a thousand years of peace.

Know in your bones that small committed coaching circles *can* indeed transform the world. We can rise to the occasion. We can give the gift of time. Together we *can* shape our future.

Take a stand for human dignity. Take a stand for the premier value of continuing life on Earth. In our risky race against time, take a stand for raising the bar in all our human activities. Together.

Make the Coach Five Project a priority in your life—the world urgently needs your participation. Hold Life Coaching and The Natural Step Framework as perfectly timed human innovations. Through their synthesis, you can help a higher social intelligence emerge.

Do your utmost to influence a healthy and flourishing present. Act, reflect, act. Unleash the good energy and human capital now trapped in the tight squeeze of our shared reality. Enact your community's vision of a world that works for all life.

Coach Five, Who Coach Five, and We All Thrive.

We are six billion valid stakeholders and counting.

We *are* the leverage.

## APPENDIX A

# Two Tools

### A CAPSULE VERSION OF THE NATURAL STEP FRAMEWORK

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Founded in Sweden in 1989 by cell scientist and cancer doctor Dr. Karl-Henrik Robèrt, The Natural Step provides a framework to guide society toward a sustainable future. Part I explains the consensus process that determined the scientific principles underpinning the framework and then covers each of its components in depth. Today hundreds of organizations and thousands of people worldwide find it is in their self-interest to employ The Natural Step Framework in their lives and work. Its elements include:

- **Resource Funnel.** Civilization races into a metaphorical funnel of decreasing life-sustaining resources and increasing waste, pollution, violence, war, and poverty. At the same time that forests, arable land, and fisheries are in decline, population increases, water scarcity grows, and people face disintegrating traditions that keep their cultures strong. This puts a tight squeeze on our capacity to create solutions and causes a highly complex situation.
- **Systems thinking.** Seeing the Earth as a closed system with respect to matter, and an open system with reference to energy, scientists have identified the principles that are at the heart of sustainability helping us better discern how the world works from a bio-physical angle:
  - Matter and energy cannot be created or destroyed. *Nothing disappears.*
  - Matter and energy tend to disperse spontaneously. *Everything spreads.*
  - Material quality is in the concentration and structure of matter. *There is value in order.*
  - Net increases in material quality on Earth are generated almost entirely by sun-driven photosynthetic process. *Plants create structure and order by using energy from sunlight.*

- **System Conditions.** Using Nature’s cycles and systems as a model, The Natural Step Framework offers four conditions for maintaining quality in the whole system of Nature and Society. These non-negotiable System Conditions summarize the core of the Framework and enhance our solutions, decision-making, and strategic planning. In the sustainable society, these conditions tell us that Nature cannot withstand systematic
  - concentrations of substances extracted from the Earth’s crust
  - concentrations of substances produced by society
  - degradation by physical means
  - and, ... in that society human needs are met worldwide
- **The Compass.** To *apply* the framework, we combine several concepts, which together comprise the “compass” that points us “true north” toward a just and sustainable future: the funnel, the System Conditions, backcasting, and a step-by-step itinerary to actualize the sustainable vision. Unlike forecasting that relies on trend extrapolation from the unsustainable present, backcasting begins with a vision of a sustainable society that adheres to the Four System Conditions, helping to control the outcome. The step-by-step itinerary encompasses the action plan and steps for manifesting the vision.

In the back matter of *The Natural Step Story*, published in early 2002, Dr. Karl-Henrik Robèrt offers pertinent documents, which will be of value to anyone who is serious about applying the framework in their community, profession, industry, or organization:

1. an excerpt of the Swedish agricultural sector’s consensus outlining actions to benefit the whole of society in the long run;
2. “The Natural Step Philosophy and Core Values of the Organization” (Excerpt); and
3. a reprint of Dr. Robèrt’s article in *The Journal of Cleaner Production* in which he delineates the framework and explains how well-known tools, concepts and metrics can be used with The Natural Step Framework, such as Life Cycle Assessment, Ecological Footprinting; EMS (Environmental Management System) such as ISO 14001 or EMAS, and Factor 10.

## MATRIX OF NEEDS AND “SATISFIERS”

*Used with the permission of Manfred Max-Neef*

NINE UNIVERSAL NEEDS	“SATISFIERS”			
	BEING	HAVING	DOING	INTERACTING
<i>Subsistence</i>	1) Physical and mental health equilibrium, sense of humor, adaptability	2) Food, shelter, work	3) Feed, rest procreate, work	4) Living environment, social setting
<i>Protection</i>	5) Care, adaptability, autonomy, equilibrium, solidarity	6) Insurance systems, savings, security, health systems, rights family, work	7) Co-operate, prevent, social plan, take care of, cure, help	8) Living space, social environment, dwelling
<i>Affection</i>	9) Self-esteem solidarity, respect, tolerance, generosity, receptiveness passion, determination sensuality, sense of humor	10) friendships, family, partnerships, relationships with nature share,	11) make love, caress, express emotions, togetherness take care of, cultivate, appreciate	12) privacy, intimacy, home, spaces of
<i>Understanding</i>	13) Critical Conscience, openness, curiosity, wonder, discipline, intuition, rationality	14) Literature, teachers, method, educational policies, communi- cation policies	15) Investigate, study, experiment, educate, analyze, meditate	16) Settings of formative interaction, schools, universities, groups community family

	BEING	HAVING	DOING	INTERACTING
<i>Participation</i>	17) Adaptability, openness, solidarity, willingness, respect, dedication, determination, passion, sense of humor	18) Rights, responsibilities, duties, privileges, work	19) Become affiliated, co-operate, propose, share, dissent obey, interact agree on, express opinions	20) Settings of participative interaction, parties, associations, churches, communities, neighborhoods, family
<i>Idleness</i>	21) Curiosity, openness, imagination, recklessness, sense of humor, tranquility, sensuality	22) Games, spectacles, clubs, parties, peace of mind	23) Day-dream, brood, dream, recall old times, give way to fantasies, remember, relax, have fun, play	24) Privacy, intimacy, spaces of closeness, free time, surroundings, landscapes
<i>Creation</i>	25) Passion, autonomy, intuition, imagination, work boldness, rationality, determination, inventiveness, curiosity	26) Abilities, skills, method,	27) Work, invent, build, design, compose, interpret	28) Productive & feedback settings, workshops, cultural group audiences, spaces for expression, temporal freedom

	BEING	HAVING	DOING	INTERACTING
<i>Identity</i>	29) Sense of belonging, consistency, differentiation, self-esteem, assertiveness	30) Symbols, language, religions, work, customs, reference groups, sexuality, values, norms, historical memory, habits	31) Commit oneself, integrate confront, decide on, get to know oneself, recognize stages oneself, actualize oneself, grow	32) Social rhythms, everyday settings, settings one belongs to, maturation
<i>Freedom</i>	33) Autonomy, self-esteem, determination, passion, assertiveness, open minded- ness, boldness, rebelliousness, tolerance	34) Equal rights	35) Dissent, choose, be different from, develop awareness, commit oneself, run risks, disobey	36) Temporal/ spatial plasticity

## APPENDIX B

# Practical Resources

*A basic starting point for sustainable sources, the following list is far from definitive in our complex and fast changing world.  
Our web site will continue to add to this list.*

### Agriculture

John Jeavons, *How to Grow More Vegetables, Fruit, Nuts, Berries, Grains and Other Crops Than You Ever Thought Possible on Less Land Than You Can Imagine*. 6<sup>th</sup> Edition. (Ten Speed Press, 2002): [www.growintensive.org](http://www.growintensive.org) and [www.bountifulgardens.org](http://www.bountifulgardens.org)

Bill Mollison's classic, *Permaculture*, now out of print; check your library

Toby Hemenway, *Gai'a's Garden: A Guide to Home-Scale Permaculture* (Chelsea Green, 2001): <http://www.permaculture.org>

Selected Organic and Untreated (GMO-free) Seed Sources:

Ecology Action's Bountiful Gardens' catalogue [www.bountifulgardens.org](http://www.bountifulgardens.org)

Pinetree Garden Seeds <http://www.superseeds.com>

"The Agribusiness Examiner," published by sustainable agriculture champion, A. V. Krebs. It monitors corporate agribusiness from a public interest perspective. Its web site—[www.ea1.com/CARP/](http://www.ea1.com/CARP/)—offers an index to past issues of the *Examiner* and *The Agbiz Tiller* as well as educational information on agribusiness and how to research corporations.

Food and Agriculture Organization (FAO) of the United Nations has an informative web site containing links to different FAO programs, such as agriculture, economics, forestry, fisheries, nutrition. It also has a news highlights section with an in-depth focus and global watch. English, French, Spanish and Arabic: [www.fao.org/](http://www.fao.org/)

### Community Resources

Resilient Communities: [www.resilientcommunities.org/Articles/clues.htm](http://www.resilientcommunities.org/Articles/clues.htm) Excellent suggestions for small groups using backcasting techniques

Nonprofit GENIE Homepage: [www.genie.org/](http://www.genie.org/) Help for nonprofit and non-governmental organizations from start-ups to vision and mission work.

Good general list of sources: [www.thegarden.net/buildingcommunity.html](http://www.thegarden.net/buildingcommunity.html)

## Gender Equity

Association for Women's Rights in Development (AWID) — The AWID Forum is the largest recurring event on gender equality outside of the United Nations system. AWID's 9<sup>th</sup> International Forum (October, 2002) focused on re-inventing globalization, women challenging the new political and military order, human rights for all, and transformative leadership. [www.awid.org](http://www.awid.org)

Development Alternatives with Women for a New Era — DAWN is a network of women scholars and activists from the economic South who engage in feminist research and analysis of the global environment and are committed to working for economic justice, gender justice and democracy, DAWN works globally and regionally in Africa, Asia, the Caribbean, Latin America and the Pacific on the themes of the Political Economy of Globalization; Political Restructuring and Social Transformation; and Sexual and Reproductive Health and Rights, in partnership with other global NGOs and networks. [www.dawn.org/fj](http://www.dawn.org/fj)

## Geographical Information Sources

Greenhouse gases, the Kyoto protocol: <http://maps.grida.no/kyoto/>

Barents maps on wilderness in the Arctic: <http://maps.grida.no/barents/>

Globio: scientific overview of the cumulative impacts of human activities on the environment at various scales: [www.grida.no/prog/polar/globio/](http://www.grida.no/prog/polar/globio/)

UNEP/GRID-Arendal GIS: [www.grida.no/db/gis/prod/html/toc.htm](http://www.grida.no/db/gis/prod/html/toc.htm)

## Miscellaneous Sources

Alliance for Democracy, a populist movement setting forth to end the domination of our economy, our government, our culture, our media, and the environment by large corporations. [www.afd-online.org](http://www.afd-online.org) and [www.thealliancefordemocracy.org](http://www.thealliancefordemocracy.org)

The "Amazing Environmental Organization Web Directory" identifies hundreds of environmental organizations on the world-wide web and provides a brief description of each of the sites. [www.webdirectory.com/](http://www.webdirectory.com/)

Co-op America, publishes the Green Pages, [www.greenpages.org](http://www.greenpages.org)

*Earth News*, an email message of the day's news items compiled by Tom Kemper, founder of Sustainable Dallas and Dolphin Blue Environmentally Responsible Office Supplies

Earth Policy Institute has free downloads of Lester Brown's *Eco-economy; Building an Economy for the Earth* (New York: W.W. Norton, 2002); Earth Policy Alerts; and Eco-Economy Updates: [www.earth-policy.org](http://www.earth-policy.org)

EnviroLink, the "largest online environmental information resource on the planet," this site contains resources on environmental issues, each with a brief description of the work of the organization. Has discussion forum and gobs of activity ideas. English only. [www.envirolink.org/](http://www.envirolink.org/)

Grist Magazine: politics and the Earth [www.gristmagazine.com](http://www.gristmagazine.com)

Solar Host, a solar powered web host provider [www.solarhost.com](http://www.solarhost.com)

WebCtel, a solar powered Internet service provider: [www.webctel.com](http://www.webctel.com)

## Nuclear and Related Issues

Comprehensive list of organizations: [www.nirs.org/links.htm](http://www.nirs.org/links.htm)

Institute for Energy and Environmental Research: [www.ieer.org](http://www.ieer.org)

Nuclear Information and Resource Service: [www.nirs.org](http://www.nirs.org)

Southwest Research and Information Center: [www.sric.org](http://www.sric.org)—best source on health effects of uranium mine tailings, the WIPP “dump” for plutonium from military weapons manufacture and testing, and NORM (Naturally Occurring Radioactive Materials) waste from oil and gas operations.

Critical Mass Energy and Environment Program: [www.citizen.org/cmep](http://www.citizen.org/cmep)

Citizen Alert: [www.igc.org/citizenalert](http://www.igc.org/citizenalert)—focus on Yucca Mountain

Nevada Nuclear Waste Projects Office: [www.state.nv.us/nucwaste](http://www.state.nv.us/nucwaste)

DOE's Yucca Mountain Project Office: [www.ymp.gov](http://www.ymp.gov)

## Renewable Energy

CREST, the Center for Renewable Energy and Sustainable Technology:

[www.crest.org/](http://www.crest.org/) or <http://solstice.crest.org/> Search the site for bio-energy, solar, and even straw-bale construction. The CREST Guide, the premier directory for links to sustainable energy and development resources on the Internet [solstice.crest.org/online/aeguide/aedb.html](http://solstice.crest.org/online/aeguide/aedb.html) or email [info@crest.org](mailto:info@crest.org) See also [solstice.crest.org/renewables/index.shtml](http://solstice.crest.org/renewables/index.shtml)

Green building, [www.greenbuilding.com](http://www.greenbuilding.com), see also:

[www.sustainable.doe.gov/toolkit/buildings.shtml](http://www.sustainable.doe.gov/toolkit/buildings.shtml) (DOE toolkit)

[www.southface.org/home/house/guide\\_bk.pdf](http://www.southface.org/home/house/guide_bk.pdf) (Southface's guide book)

[www.usgbc.org/resource/index.htm](http://www.usgbc.org/resource/index.htm) (U.S. Green Buildings Council)

[www.ases.org/pubcat/edu.html](http://www.ases.org/pubcat/edu.html) (List of solar educational publications)

[www.ases.org/pubcat/resdesign.html](http://www.ases.org/pubcat/resdesign.html) (solar residential design resources)

[www.sbicouncil.org/resource/index.html](http://www.sbicouncil.org/resource/index.html) for case studies and related items.

Northeast Sustainable Energy Association (NESEA). [www.nesea.org](http://www.nesea.org)

Alternative Technology Association, an Australian community group promoting energy efficient technology and working in harmony with the environment. [www.ata.org.au/](http://www.ata.org.au/)

Kortright Centre, a Canadian environmental education centre with energy efficiency technologies demonstration. [www.kortright.org](http://www.kortright.org)

Solar Electric Light Fund puts photovoltaics on rooftops in third world countries. [www.self.org](http://www.self.org)

West Wales ECO Centre, UK: renewable technologies, conservation and the impacts of that use. [www.ecocentre.org.uk](http://www.ecocentre.org.uk)

## Scientific and Technical Sources *(beyond those listed elsewhere in book)*

Consortium for International Earth Science Information Network (CIESEN)—[www.ciesin.org](http://www.ciesin.org) Provides “information for a changing world.” Designed for scientists, decision-makers and the public, includes background articles and journals, collections

- of scientific data with both global and regional foci, the final official texts for over 160 international treaties on sustainable development (emphasis more on environmental treaties), and interactive applications. Topics: population, health, development, land-use, agriculture, climate change and ozone depletion. English only.
- Environment Canada—[www.ec.gc.ca/](http://www.ec.gc.ca/) An award-winning site, contains information on Canadian policies, statistics and programmes, ministerial speeches, media releases, information on many environmental issues with detailed statistical and technical information and data. English and French.
- International Institute for Sustainable Development (IISD) — A huge site on broad range of issues (forests, climate change, food, trade, green economics, ethics, peace and global governance). Significant events, indigenous groups, local communities, civil society, youth, women etc. <http://iisd1.iisd.ca/>
- IISD's *Earth Negotiations Bulletin* and *Sustainable Developments* provide information on past and upcoming international meetings on environment and development. English and French [www.iisd.ca/linkages/](http://www.iisd.ca/linkages/)
- United Nations Educational, Scientific and Cultural Organization—its site has information on UNESCO programs, legal instruments, publications, information services, products, etc. [www.unesco.org/](http://www.unesco.org/)
- United Nations Environment Programme — [www.unep.org/](http://www.unep.org/) Information on UNEP programmes, products, services, events and partnerships. For UN conventions on environmental issues, see UNEP's Info Unit for Conventions at [www.unep.ch/iuc](http://www.unep.ch/iuc) World Environment Day at [www.unep.org/per/ipa/wed](http://www.unep.org/per/ipa/wed)

## Sustainable Living Catalogs

- Alternative Energy Store*, on-line solar/wind products. [www.AltEStore.com](http://www.AltEStore.com)
- Creative Energy Technologies*, online store for renewable energy supplies (expert consultation). [www.cetsolar.com](http://www.cetsolar.com)
- Dolphin Blue* Environmentally Responsible Office Supplies [www.dolphinblue.com](http://www.dolphinblue.com)
- Eco-Mall*, comprehensive resource for sustainable products and services, [www.ecomall.com](http://www.ecomall.com)
- Energy Outfitters*, provides earth-friendly products for remote homes and off-grid living. [www.energyoutfitters.com](http://www.energyoutfitters.com)
- Harmony*, products for natural, healthy household needs [www.gaiam.com](http://www.gaiam.com)
- Home Power Magazine*, [www.homepower.com/fairs.htm](http://www.homepower.com/fairs.htm)
- Jade Mountain, healthy energy and appropriate technology for living off the grid, now aligned with Gaium [www.jademountain.com](http://www.jademountain.com)
- Lehman's Non-Electric Catalog*, serving the Amish and others without electricity with products for simple, self-sufficient living: [www.lehmans.com](http://www.lehmans.com)
- LOHAS Journal Online*, tracking the \$540 billion global market for sustainable lifestyles [www.naturalbusiness.com](http://www.naturalbusiness.com)
- Real Goods*, building a sustainable world since 1978 with solar and wind energy systems and products for efficient natural homes, sustainable lifestyle, now joined with Jade Mountain, see [www.solar.realgoods.com](http://www.solar.realgoods.com) or [www.solardevelopment.com](http://www.solardevelopment.com)

Solar Electric Inc., carries a line of solar electric and other renewable energy products.  
[www.solarelectricinc.com](http://www.solarelectricinc.com)

SolarHost, web hosting for a better planet. [www.solarhost.com](http://www.solarhost.com)

SolarSense.com, a retailer of solar electric equipment, including a portable solar electric system. [www.solarsense.com](http://www.solarsense.com)

Solar Wind Works, installing dealer with a background in home construction, design, engineering, and teaching. [www.solarwindworks.com](http://www.solarwindworks.com)

*Solmomma*, the renewable energy source with “best prices anywhere” on solar electric systems, wind power generators, etc. [www.solmomma.com](http://www.solmomma.com)

Sunelco, the Sun Electric Company Planning Guide and Products Catalog, offering products for planning and installing a renewable energy system at your home or work site. [www.sunelco.com](http://www.sunelco.com)

Sun Frost, efficient refrigerators both on and off grid. [www.sunfrost.com](http://www.sunfrost.com)

## APPENDIX C

# Training Options

### **The Natural Step/US**

116 New Montgomery Street, Suite 800  
San Francisco, CA 94105

UNITED STATES

email: [services@naturalstep.org](mailto:services@naturalstep.org)

web site: [www.naturalstep.org](http://www.naturalstep.org) <<http://www.naturalstep.org/>>

*Lists conferences and workshops as well as interested individuals in the US, by state*

### **The Natural Step/International**

The Natural Step, Sweden

Det Naturliga Steget

Wallingatan 22 111 24

Stockholm, SWEDEN

email: [info@detnaturligasteget.se](mailto:info@detnaturligasteget.se)

web site: [www.detnaturligasteget.se](http://www.detnaturligasteget.se)

*Lists affiliate organizations worldwide*

**International Coach Federation**, [www.coachfederation.org](http://www.coachfederation.org) (not a training school but rather the largest worldwide *professional association* of personal, life, and business coaches). Has a robust ethical conduct review program and accredits training schools (listed on web site) and also credentials/certifies professional coaches internationally. Has a coach referral site.

**Coach U** [www.coachu.com](http://www.coachu.com) Trains primarily via teleclasses—conference calls, has Core Essentials and Jumpstart programs, ICF accredited. Also, owns the International Coach Directory.

**The Coaches Training Institute** [www.thecoaches.com](http://www.thecoaches.com) Trains primarily via workshops, has a mentor coach program, ICF accredited.

**Coachville** [www.coachville.com](http://www.coachville.com) An inexpensive introductory web-based program with a coach referral site

**Graduate School of Coaching**, [www.graduateschoolofcoaching.com](http://www.graduateschoolofcoaching.com) Offers teleclasses, has a mentor coach program, and plans to certify through a standards board

**The Newfield Network**, [www.newfieldnetwork.com](http://www.newfieldnetwork.com) A coach training program started in Latin America, with offices elsewhere as well. ICF accredited

# Glossary

**Atmosphere** is the envelope of gaseous masses surrounding celestial bodies, especially the one surrounding our Earth.

**Biodiversity** is “the full variety of life on Earth [or in an ecosystem] and all the processes and interactions that sustain it.”<sup>254</sup>

**Bio-mimicry** refers to the economics of *imitating* natural processes in our human-made products and technological services, in which we mimic biological forces of Nature.

**Biosphere** is that part of the Earth where life is active—its fragility and thinness is proportionately comparable to the peel of an apple or pear. For our purposes, the biosphere does not include the ozone layer. Industrial society’s activities thus influence more than the biosphere. The terrestrial biosphere includes plants, animals and the litter and soil organic matter on land; the marine biosphere includes the living things in the oceans and their debris.<sup>255</sup>

**Climate Change.** The long-term fluctuations in temperature, precipitation, wind, and all other aspects of the Earth’s climate. External processes, such as solar-irradiance variations, variations of the Earth’s orbital parameters (eccentricity, precession, and inclination), lithosphere motions, and volcanic activity, are factors in climatic variation. Internal variations of the climate system, e.g., changes in the abundance of greenhouse gases, also may produce fluctuations of sufficient magnitude and variability to explain observed climate change through the feedback processes interrelating the components of the climate system.

**Co-creation** is the collective process of giving rise to or bringing something about or into being: *the co-creation of our shared future*. The “mid-wifery” of generating together—as a group, neighborhood, community, or species—a compelling vision and then mutually realizing it: *The co-creation that transpired in our coaching circle contributed to meeting human needs in our county*. “Collaborative spunk” is a high-spirited form of co-creation.

**Conscientization** is an ongoing interactive process through which a person breaks through dominant myths to reach new levels of awareness, especially awareness of oppression, “*being an ‘object’ in a world where only ‘subjects’ have power,*” as Brazilian educator *par excellence* Paulo Freire taught. Such integrated consciousness liberates people to become part of the process of changing the world through *collective action* on mutually agreed upon goals. It is not the same as the “consciousness raising” process in which *individuals passively receive* pre-selected, approved, or ready-made knowledge. Conscientization is the result of action that transforms the world and leads to humanization. In Portuguese, this process, identified by Freire, is called *conscientização*.

**Eco-services** are those services Nature provides through its flows and resource base, such as: clean air; climate regulation; safe and sufficient ground or surface water; ample fertile areas; thickness and quality of productive soils; nutrient contents. It may also refer to genetic variation within a species' population and within entire ecosystems (systems varying in size from micro-habitats to entire seas in which living organisms affect each other and their environs); and other physical conditions necessary for productivity and diversity within the ecosphere.

**Ecosphere** is that part of the Earth which directly or indirectly maintains its structure and flow using energy from the sun. The ecosphere encompasses the biosphere, the atmosphere (including the ozone layer), the hydrosphere (the oceans and water cycles), and the pedosphere (the free layer of soils above the bedrock), but not the lithosphere (the Earth's crust, mantle, and hot core). Slow flows through sedimentation take place from the ecosphere to the lithosphere. Compared to the flows within the ecosphere, the exchanges of energy and matter between the ecosphere and the lithosphere are much smaller.<sup>256</sup>

**Greenhouse Gases.** Those gases, such as water vapor, carbon dioxide, tropospheric ozone, nitrous oxide, methane, and CFCs, that are largely transparent to solar radiation but opaque to outgoing longwave radiation. Their action is similar to that of glass in a greenhouse. Some of the longwave (infrared) radiation is absorbed and re-emitted by the greenhouse gases. The effect of this is to warm the surface and the lower atmosphere of the earth.

**Lithosphere** is the inner part of the Earth (which is not the ecosphere). It is composed of the Earth's core, mantle, and crust. Processes in the lithosphere are mainly driven by radioactive decay of its heavy elements. Because the formation and concentration of minerals in the lithosphere is part of a slow cycle, the resources sequestered there are, from society's point of view, finite and not renewable for millions of years. There is a natural slow flow from the lithosphere into the ecosphere through volcanic activity and weathering processes.<sup>257</sup>

**The Natural Step.** Founded in Sweden in 1989 by cell scientist and cancer doctor Dr. Karl-Henrik Robèrt, The Natural Step, with offices in nine countries, is an international network of non-profit educational organizations working to accelerate the shift to a sustainable society. Scientists, economists, entertainers, engineers, farmers, teachers, restaurateurs, industrial designers, lawyers, psychologists, architects, doctors and nurses organized as professional networks in Sweden. In the United States, supporters of The Natural Step are fond of calling themselves "Step Heads."

**The Natural Step Framework.** Through consensus around first order principles, Robèrt and other leading scientists elaborated The Natural Step Framework to share a mental model that points the way toward a sustainable future. Besides the System Conditions, the framework components include the Resource Funnel, Systems Thinking, and the Compass. The framework helps us proactively think together about the "tight squeeze" we face, make better decisions, and strategically plan for our public and personal aspirations in life-sustaining ways. Applicable to any individual, organization, community or nation, the principles are simple, profound, and inclusive.

Today hundreds of businesses and communities in Sweden—and elsewhere use the framework to guide society toward a healthy and prosperous future.

**Nature's Ultimatum** expresses the author's notion of the threat of serious penalties we can expect if we continue to violate the nonnegotiable conditions that govern and sustain life on our planet. We cannot systematically violate the terms of Nature's Ultimatum without eventually inviting disaster. For life to continue, we need to help others become aware of these conditions, and honor, adapt to, and make them the foundation of our culture.<sup>258</sup>

**Nemesis Effect** is the term applied by World Watch research associate Chris Bright to describe destructive, sometimes sudden, outcomes or surprise events caused by unanticipated interactions in our “increasingly dysfunctional relationship between our societies and the environment.” The forces of ecological degradation (overharvesting the oceans, pollution, the greenhouse effect, etc.) “interact in all sorts of ways. Their effects are determined, not just by the activities that initially produced them, *but by each other and by the way ecosystems respond to them.*”<sup>259</sup>

**Ozone.** A molecule made up of three atoms of oxygen. In the stratosphere, it occurs naturally and provides a protective layer shielding the Earth from ultraviolet radiation and subsequent harmful health effects on humans and the environment. In the troposphere, it is a chemical oxidant and major component of photochemical smog. Ozone is an effective greenhouse gas especially in the middle and upper troposphere and lower stratosphere.

**Photosynthesis** is the manufacture by plants of carbohydrates and oxygen from carbon dioxide and water in the presence of chlorophyll with sunlight as the energy source. Oxygen and water vapor are released in the process. Photosynthesis is dependent on favorable temperature and moisture conditions as well as on the atmospheric carbon dioxide concentration. Increased levels of carbon dioxide can increase net photosynthesis in many plants.

**Stratosphere.** Region of the atmosphere between the troposphere and mesosphere, having a lower boundary of approximately 8 km at the poles to 18 km at the equator and an upper boundary of approximately 50 km. Depending upon latitude and season, the temperature in the lower stratosphere can increase, be isothermal, or even decrease with altitude, but the temperature in the upper stratosphere generally increases with height due to absorption of solar radiation by ozone.

**Super-exponential Evolution** is a biological term that describes rapid evolutionary change, a type of biological revolution. As used in this work, it refers to rapid cultural change.

**Tight Squeeze** describes our current unsustainable and urgent reality of increasing demands, declining resources, accelerating extinction, escalating waste, and unsustainable economics and ethical systems.

**Troposphere.** Lowest atmospheric layer, between the surface and tropopause (the boundary between the upper troposphere and the lower stratosphere that varies in altitude between approximately 8 km at the poles to 18 km at the equator.).

# Notes

## Preface

<sup>1</sup> For specific case studies and more examples, see Karl-Henrik Robèrt, *The Natural Step Story: Seeding a Quiet Revolution* (New Society Publishers, 2002); Brian Nattrass and Mary Altomare, *The Natural Step for Business* (New Society Publishers, 1999); Paul Hawken, Amory Lovins, and Hunter Lovins, *Natural Capitalism; The Next Industrial Revolution* (Little Brown, 2000); Ray Anderson, *Mid-course Correction* (Chelsea Green, 1999); and The Natural Step/US web site [www.naturalstep.org](http://www.naturalstep.org).

<sup>2</sup> Christopher Doering, "Study: Earth Can't Meet Human Demand for Resources," a Reuters report on research published in National Academy of Sciences Proceedings, 24 June 2002, by Redefining Progress' Program Director, Mathis Wackernagel: Viewed at [yahoo.com](http://yahoo.com) 25 June 2002. See also William E. Rees and Mathis Wackernagel, "Ecological Footprints and Appropriated Carrying Capacity: Measuring the Natural Capital Requirements of the Human Economy." Presented to the Conference of the International Society of Ecological Economics, Stockholm 1992; also, an interview in the Fall 1998 *TNS Newsletter*. Resources on how you can adjust your own ecological footprint are listed at [www.redefiningprogress.org](http://www.redefiningprogress.org).

## Chapter 1

<sup>3</sup> Brian Nattrass and Mary Altomare, *The Natural Step for Business; Wealth, Ecology and the Evolutionary Corporation* (Gabriola Island, BC, Canada: New Society Publishers, 1999), pp. xiii-xiv.

<sup>4</sup> *Ibid.*

<sup>5</sup> "Storying Corporate Futures: The Shell Scenarios," *International Journal of Future Studies*, Vol. I, 1995-1997.

<sup>6</sup> "The Mont Fleur Scenarios," *The Weekly Mail/The Guardian Weekly*, South Africa, 1992.

<sup>7</sup> Lynne Twist, "Tips for transformative leadership," *Yes! A Journal of Positive Futures*, Fall 1999, p. 34.

<sup>8</sup> *Ibid.* p. 35.

<sup>9</sup> The training was the Five-Day Advanced Training in The Natural Step held in Danvers, Massachusetts, in October 1997.

<sup>10</sup> John Harte, "Defining the 'B' Word," *Defenders Magazine*, Winter 1992/93. See Chapter 5 for further discussion of biodiversity.

<sup>11</sup> See the "Consumption Spike" in Ed Ayers' *God's Last Offer; Negotiating a Sustainable Future* (New York: Four Walls, Eight Windows, 1999) where he observes: "In a Toys-R-Us world, we spend more and more to bring up kids who are less and less connected to what keeps them alive" (p. 40).

<sup>12</sup> Personal communication, 5 October 2000.

<sup>13</sup> Metaphors, while often helpful, can sometimes be limiting. I have found the resource

funnel to be relevant and protective of people, instructional, and easily grasped by most people. It also fits my experience of reality, ultimately it nurtures people, and it focuses attention on the essential facts and relationships.

<sup>14</sup> Ed Ayers' *God's Last Offer*, op cit., p. 18.

<sup>15</sup> Paul Hawken, Amory Lovins, and L. Hunter Lovins, *Natural Capitalism: Creating the Next Industrial Revolution* (New York: Little Brown, 1999).

## Chapter 2

<sup>16</sup> Frank Rivers, *The Way of the Owl: Succeeding with Integrity in a Conflicted World* (San Francisco: HarperSanFrancisco, 1997).

<sup>17</sup> Holmberg, J., and S. Karlsson, "On Designing Socio-Ecological Indicators," *Society and Environment: A Swedish Research Perspective*, edited by Svedin, U. & Hägerhäll Aniansson, B. (Dordrecht: Kluwer Academic Publishers, 1992).

<sup>18</sup> Ibid.

<sup>19</sup> *Encyclopedia of World Problems and Human Potential*, edited by the World Problems and Global Issues Project, Union of International Associations, clearing house for information on over 40,000 international non-profit organizations and constituencies, 4th edition, 1994-95, 1 vol. and on the web at [www.uia.org](http://www.uia.org)

<sup>20</sup> "State feels effects of huge hog farms," *The Austin American Statesman*, Sunday, October 17, 1999, p. A2.

<sup>21</sup> The text refers to the Gnome Site where the federal government's underground nuclear explosion took place December 10, 1961, about 5.5 miles southwest of the present WIPP site. Don Hancock of the Southwest Research and Information Center says the "Environmental Evaluation Group's EEG-58, published in July 1995, documents its radiological surveys at the Gnome Site. It showed that there was some transuranic contamination at the site in 1994 and references other surveys of the site that had been done previously. The EEG report refers to "unrestricted access" to the site, and I believe that they'd agree with the idea that signs and markers were down—though it's not clear whether the government actually decided to remove them. Before the EEG's 1994 survey which still showed contamination, the federal government had 'cleaned up' the site twice—once in 1968-69 and again in 1978-79." Don Hancock, personal communication, 5 Feb. 2001. EEG can be reached at (505) 828-1003.

<sup>22</sup> Personal communication, Pamela McAllister of The Nature Conservancy of Washington State, 31 January 2001.

<sup>23</sup> See Resource Section in the back of this book for information on: the WIPP site and plutonium from military weapons manufacture and testing; NORM waste from oil and gas operations; uranium mine tailings; Pan-Tex; Hanford; the Monitored Retrievable Storage facility fiasco; Yucca Mountain; and nuclear waste from both military and commercial electric utility power plant activities.

<sup>24</sup> One of the most unnerving of these articles is by Lisa Mastny, "Coming to Terms with the Arctic," *World Watch Magazine*, January/February 2000. On pages 29 and 30, we find that Arctic indigenous peoples are facing global threats such as 1) "their traditional storage cellars, cut into the permafrost, are dripping water for the first time ever, an indication that the Arctic climate is changing—and fast" and 2) their infants, through

breast feeding, are soaking up a vast array of toxins like mercury, cadmium, chlordane, PCBs, DDT, toluene, benzene, xylene, lead, dioxins and furans originating “from fields and factories as far south as the tropics.” They are concentrating via the food chain in humans and other large predators: “Although the contaminants have been detected in communities across the Arctic, the Inuit have the misfortune of living in areas that tend to receive the highest doses.”

<sup>25</sup> “Giant Pollution Cloud over Asia,” in *World Watch Magazine*, Nov/Dec, 99, p. 11

<sup>26</sup> United Nations Environment Programme (UNEP). Press Release 9 Apr 2001, “More knowledge of interactions between Asian Brown Haze, Global Warming and Ozone urgently needed says UNEP.” Results from INDOEX (the Indian Ocean Experiment) have been published extensively, including in the May 4, 2000 edition of *Nature* and the February 9, 2001 edition of *Science* magazine. Explanatory press releases are available from [www.unep.org](http://www.unep.org). Further information available from: [www.nsf.gov](http://www.nsf.gov) or [www.sio.ucsd.edu/scripps\\_news/pressreleases/indoex](http://www.sio.ucsd.edu/scripps_news/pressreleases/indoex) or [www.ipcc.ch](http://www.ipcc.ch).

<sup>27</sup> Waldrop, p. 12.

<sup>28</sup> *Ibid.*, p. 356.

<sup>29</sup> *Encyclopedia of World Problems and Human Potential*, op. cit.

<sup>30</sup> Personal communication 31 January 2001.

### Chapter 3

<sup>31</sup> Ogden Nash, *Good Intentions* (1942), “Song of the Open Road.” Nash’s mockery of Joyce Kilmer’s poem, *Trees*, 1913: I think that I shall never see

A poem lovely as a tree.

A tree whose hungry mouth is pressed

Against the earth’s sweet flowing breast....

Poems are made by fools like me,

But only God can make a tree.

<sup>32</sup> Karl-Henrik Robèrt, “Educating a nation: The Natural Step,” *IN CONTEXT* #28, Spring 1991.

<sup>33</sup> Diane Banegas, “Tree of Life: Scientists Model Nature’s System of Fractal-branching Networks,” *Santa Fe Institute Bulletin*, Vol. 12, no. 2, Summer 1997.

<sup>34</sup> Edward O. Wilson, *Consilience; the Unity of Knowledge* (New York: Knopf, 1998) p. 28.

<sup>35</sup> *Ibid.*, p.267.

<sup>36</sup> *Ibid.*, p. 53-54, and 267.

<sup>37</sup> Dr. Karl-Henrik Robèrt, personal communication, 18 June 2000, with the author.

<sup>38</sup> *The Natural Step*, Curriculum Version 3.0, The Natural Step, 1997.

<sup>39</sup> See *The Natural Step Newsletter* for inspiring examples of how TNS has been used around the world at [www.naturalstep.org](http://www.naturalstep.org).

<sup>40</sup> 40,000 tons of cosmic dust arrive each year, 300,000 tons of hydrogen leave. *Ibid.*, TNS Curriculum 3.0.

<sup>41</sup> Dr. Karl-Henrik Robèrt, personal communication with the author, op.cit. In theory it is possible to turn rust back into a car or unscramble an egg. “From a thermodynamic point of view, there is just a resource cost; the energy-flow in all processes must

irreversibly degrade the exergy (quality of energy or working ability) to ever lower values until all of it is converted to heat of ambient temperature. That's why you need energy from outside a system to maintain its resource quality. And if you do, you can turn rust back into a car again (but the exergy-cost is impressive, exceeding the exergy contents of the original car). In the same way, thermodynamics allows us to "unscramble" an egg. The reason why we cannot do it in practical terms, is due to the information value of an egg. It's not the second law of thermodynamics that stops us." Resources on the concept of exergy can be found at B. Bass (Toronto, Canada)/ J. Kay (Waterloo, Canada), *Exergy Utilization As A Measure Of Ecosystem-Organization*, Workshop: UNIFYING GOAL FUNCTIONS, Salzau, Germany, Aug 30–Sep 4, 1996 at [www.pz-oekosys.uni-kiel.de/~maren-l/abstract/abs\\_d1.htm](http://www.pz-oekosys.uni-kiel.de/~maren-l/abstract/abs_d1.htm) and Darwish M. K. Al Gobaisi's web site for the Encyclopedia of Life Support Systems (EOLSS).at <http://ace.unm.edu/eolss/eolss.html>, both viewed 11 March 1998, and Göran Wall's "Proposal for An Exergy Tax," presented at ENSEC'93, International Conference on Energy Systems and Ecology, July 5-9, 1993, Krakow, Poland. Publ. Proc., Szargut, J., et al., eds., pp. 111-121 and presented at "2nd European Congress on Economics and Management of Energy in Industry," April 5-9, 1994, Estoril, Portugal at [www.exergy.se/](http://www.exergy.se/) viewed 24 February 1999.

<sup>42</sup> Dr. Karl-Henrik Robèrt, personal communication with the author, op.cit.

## Chapter 4

<sup>43</sup> The Permian period lasted from 286 to 248 million years ago. <http://hannover.park.org/Canada/Museum/extinction/permass.html>.

<sup>44</sup> William Prescott, *History of the Conquest of Peru*, first published in 1847; this quote is from the 1961 reprint by New American Library, pp. 86-89.

<sup>45</sup> Ibid.

<sup>46</sup> Tara McDonald, *Holiday Sermon Newsletter*, December 20, 1999. Gloria Flora suggests that "by the time people were growing food, they understood the sun cycles quite well. It seems that earlier people may have had that fear." in personal communication 30 December 2000.

<sup>47</sup> Ibid. Some tunes, according to McDonald-Tiner, contained lines such as these: "the growing dark is ending now and Spring is on its way" or "His living Light returneth to warm the seeds within us." The latter line describes "God in the form of the Sun coming to warm the Earth with the promise of Spring. They use the model of a 'Wheel of the Year' turning and turning to describe how periods of our life go dormant and then become fertile again in a cycle."

<sup>48</sup> The Atomic Energy Commission (AEC) appointed Oppenheimer Chairman of the General Advisory Committee of the AEC where he served from 1946, when the AEC was first established, until 1952.

<sup>49</sup> Joseph Campbell, *Myths to Live By* (New York, Arkana, Penguin Books, 1993; first published by Viking Press, 1972), p. 7.

<sup>50</sup> William McDonough, "Design, Ecology, Ethics and the Making of Things. A Centennial Sermon," delivered at The Cathedral of St. John the Divine in New York City on 7 February, 1993. <http://minerva.acc.virginia.edu/~arch/pub/sermon.html>

- <sup>51</sup> Ibid.
- <sup>52</sup> Mary Schmich, "In The Olympics of Life, We Could All Use a Coach," *Chicago Tribune*, February 18, 1998.
- <sup>53</sup> Ed Ayres, *God's Last Offer; Negotiating for a Sustainable Future* (New York and London: Four Walls Eight Windows, 1999) p. 18.
- <sup>54</sup> "Earth Day 2000; A 30-Year Report Card," *WorldWatch*, March/April 2000, p. 10.
- <sup>55</sup> Ayres, p. 16.
- <sup>56</sup> Edward O. Wilson, *Consilience; the Unity of Knowledge* (Knopf, 1998), p. 279.
- <sup>57</sup> Paul Hawken, Amory Lovins, and Hunter Lovins, *Natural Capitalism; Creating the Next Industrial Revolution* (Boston, New York, and London: Little Brown and Company, 1999), p. 147.
- <sup>58</sup> Barbara Marx Hubbard, *Conscious Evolution; Awakening the Power of Our Social Potential* (Novato, California: New World Library, 1998), p. 18.
- <sup>59</sup> English professor Dr. Jubal Tiner says Burns' poem is about a mouse's home being destroyed by a plow. Personal communication, 5 February 2001.
- <sup>60</sup> Unless otherwise noted, much of this section represents material I have learned from The Natural Step training and materials, and especially from Dr. Karl-Henrik Robèrt, founder of The Natural Step.
- <sup>61</sup> Wilson, p. 266.
- <sup>62</sup> Joanne Tippett, *The Natural Step Educational Series Explanation Booklet* [accompanying slides she designed for workshop presentations, available at [www.holocene.org](http://www.holocene.org) ]
- <sup>63</sup> The ancients understood the world, Tara McDonald says, in three parts: *atmo* (the heavens), *bio* (the earth), and *litho* (the underworld). These were all equally positive influences as long as they stayed in place. When mixed, McDonald goes on to say, they created disturbances. Because of his greed, the Greek mythological figure Hades pulled Persephone into the litho-underworld. Reversing the myth, today "we pull from the underworld as a result of our own greed." She notes that Hades (also known as Pluto) knew where hidden gems and precious metals could be found in the underworld and McDonald also made the connection between Pluto and Plutonium. To which I added Plutocracy, defined here as government by the wealthy, for the greedy, and of the riches taken from deep within the Earth's crust. Personal communication 5 February 2001.
- <sup>64</sup> The Natural Step Curriculum, op. cit.
- <sup>65</sup> Wilson, p. 277.
- <sup>66</sup> An outstanding commentary of this ecological burden can be found in Chris Bright, "The Nemesis Effect," *WorldWatch* (May/June, 1999), pp. 12-23. The sidebar entitled "A Spreading Matrix of Trouble" is particularly instructive.
- <sup>67</sup> Personal communication, 30 December 2000.
- <sup>68</sup> Ayres, p. 32.
- <sup>69</sup> <http://hannover.park.org/Canada/Museum/extinction/permass.html> already cited.
- <sup>70</sup> Ayres, pp. 304-305.
- <sup>71</sup> Wilson, pp. 293-294.
- <sup>72</sup> Hawken, *et al.*, *Natural Capitalism*, p. 149.
- <sup>73</sup> K.-E. Eriksson and K.-H. Robèrt, "From the Big Bang to Sustainable Societies," *Reviews in Oncology*, Vol. 4, No.2, 1991.

## Chapter 5

<sup>74</sup> Karl-Henrik Robèrt provided the wording for this sub-section regarding System Conditions, objectives and guidelines, personal communication, 10 June 2000.

<sup>75</sup> Case No. CV-99-00509-G.; In the Fifth District Court, County of Lea, State of New Mexico. Proper names are not used here pending the suit's outcome.

<sup>76</sup> *Ibid.*, pp. 16-17.

<sup>77</sup> *Ibid.*

<sup>78</sup> Jamie Lincoln Kitman, "The Secret History of Lead," *The Nation* (March 20, 2000). Many of the facts mentioned in this section I learned from this article.

<sup>79</sup> *Ibid.*

<sup>80</sup> *Ibid.*

<sup>81</sup> Peter H. Eichstaedt, *If You Poison Us; Uranium and Native Americans* (Red Crane Books, 1994).

<sup>82</sup> "A Deeper Look at System Condition One," *The Natural Step Newsletter*, Spring, 1999.

<sup>83</sup> Robèrt, Karl-Henrik, Azar, Christian, and Holmberg, John, "Fossil Fuels and Corporate Economic Risk Assessment," 1998, as quoted in *Ibid.*

<sup>84</sup> Benfield-Greig Hazard Research Centre, Environmental Data Service, "Insurers Count Costs of Climate Change," *ENDS Daily*, Jan. 1999 [www.ends.co.uk](http://www.ends.co.uk)

<sup>85</sup> The Natural Step 5-day Advanced Training, 1997.

<sup>86</sup> U.S. Department of Health and Human Services, Public Health Service, National Institute of Environmental Health Sciences, National Toxicology Program, *Seventh Annual Report on Carcinogens, Summary 1994*, p. 37.

<sup>87</sup> *Ibid.*, pp. 158-160.

<sup>88</sup> *Ibid.*, pp. 372-376.

<sup>89</sup> After the end of the Bracero farm worker exchange program between the U.S. and Mexico, which left thousands of unemployed men in northern Mexican border towns, the U.S. Congress in 1964 passed a tariff provision allowing U.S. made components to be sent offshore where they were assembled into finished goods. This created new jobs for the restless in northern Mexico. At first these factories, which were established in old warehouses and offices because there were no industrial parks available in Mexican border towns, were called twin plants. Later Mexicans called them by the name maquiladora, a name used in colonial Mexico to describe a miller who would work a farmer's grain, keeping a portion of the grain as payment. The first maquiladora opened in 1965 in Mexicali. Since then they have increased dramatically.

<sup>90</sup> David Holthouse, "What a Wasteland," *Phoenix New Times*, 07/08/1998 viewed at [www.phoenixnewtimes.com/issues/1998-07-09/feature2.html](http://www.phoenixnewtimes.com/issues/1998-07-09/feature2.html) on 7 May 2000.

<sup>91</sup> Anne Platt McGinn, "POPs Culture," *WorldWatch Magazine*, March/April 2000, pp. 26-36.

<sup>92</sup> *Ibid.* Unless otherwise noted, the next few paragraphs relate to McGinn's excellent article.

<sup>93</sup> *Ibid.*, pp. 28-31. There is a series of striking pictures, in McGinn's article, illustrating the steps in the poignant journey of one particular family of POPs, the PCBs (polychlorinated biphenyls) that are used most notably as liquid insulation in electrical

equipment. Step one is “Release” representing the production of PCBs, their loading into transformers, and their installation across the land on utility poles beginning about 1947. Step two is called “Dispersal” depicting the deterioration of transformers over the decades, either by lightening or demolition, their leakage into the soil and streams, and the inevitable drying of some of the soil which turned to dust, the winds carrying the toxic PCB substances around the globe. Step three, “Accumulation,” portrays a close-up view of a body of water with PCB-containing dust floating on the surface providing an easy meal for algae, which were eaten by water fleas, which in turn were eaten by small shrimp (“each shrimp eating many fleas and bioaccumulating the PCBs that lodged in its fat”), which then were eaten by small fish, which were eaten by larger fish. Each movement up the food chain and around the food web concentrated more of the toxin. The final step, “Consumption,” pictures a woman breast feeding her infant and in the background someone has cooked the woman a trout for dinner. The fish “has bioaccumulated the PCBs from hundreds of shrimp and thousands of fleas.” The woman then accumulates the PCBs along with other POPs she has consumed in dairy products, meat, and other foods. Alas, her baby’s first food is his mother’s polluted milk.

<sup>94</sup> Karen Gridley, *Man of the Trees; Selected Writings of Richard St. Barbe Baker* (Willetts, California, Ecology Action, 1989).

<sup>95</sup> US Fish and Wildlife Service, Kids Corner, Endangered Species, “Biodiversity. What is it?” [http://endangered.fws.gov/kid\\_cor/biodivrs.htm](http://endangered.fws.gov/kid_cor/biodivrs.htm)

<sup>96</sup> The survival of a species is dependent on the survival of its habitats, a high diversity of plant and animal species, and diverse populations within a particular species (with each population of the same species containing unique and vital genetic instructions for adapting to threats). In other words, species diversity, habitat diversity, and genetic diversity are all essential pieces of biological diversity.

<sup>97</sup> For the benefit of readers unaccustomed to Texas slang, to “mess with” means to interfere with or to meddle with something. “Mess” comes from the Latin *missus < mittere*, to place.

<sup>98</sup> John Holmberg, Karl-Henrik Robèrt, and Karl-Erik Eriksson, “Socio-ecological Principles for a Sustainable Society,” in Robert Constanza, et al. (Ed), *Getting Down to Earth—Practical Applications for Ecological Economics* (Washington, D.C., Island Press, 1996).

<sup>99</sup> Blaine P. Friedlander, Jr, “Toxic pollen from widely planted, genetically modified corn can kill monarch butterflies, Cornell study shows,” *Cornell University News Press Release*, May 19, 1999. Viewed on 8 May 2000 [www.news.cornell.edu/releases/May99/Butterflies.bpf.html](http://www.news.cornell.edu/releases/May99/Butterflies.bpf.html)

<sup>100</sup> William Butterworth, “Balancing Soil Inputs,” *Arable Farming*, September 25, 1999.

<sup>101</sup> Such monitoring is known as a hydrosphere balance account. John Holmberg, Karl-Henrik Robèrt, and Karl-Erik Eriksson, *op cit.*

<sup>102</sup> Jared Diamond, “Easter’s End,” *Discover Magazine*, 08/01/95, quoting Dutch explorer Jacob Roggeveen who named the island when he reached it on Easter Sunday, April 5, 1772. Except for my own interpretations relating to The Natural Step Framework, much of the information conveyed in this section comes from this article.

<sup>103</sup> Ibid. Scientists John Flenley, now at Massey University in New Zealand, and Sarah King of the University of Hull in England performed the tedious pollen sample work which involved “examining tens of thousands of pollen grains under a microscope, counting them, and identifying the plant species that produced each one by comparing the grains with modern pollen from known plant species.”

<sup>104</sup> Ibid.

<sup>105</sup> Ibid.

<sup>106</sup> Paul Hawken, Amory Lovins, and L Hunter Lovins, *Natural Capitalism; Creating the Next Industrial Revolution* (Boston, New York and London: Little Brown and Company, 1999), pp. 12-13.

<sup>107</sup> Ibid.

<sup>108</sup> Ibid.

<sup>109</sup> *The Natural Step Newsletter*, Spring 2000, p. 12.

<sup>110</sup> Hawken, et al., op. cit. For many more examples in the industrial arena, read *Natural Capitalism*.

<sup>111</sup> David Pimentel et al., “Will Limits of the Earth’s Resources Control Human Numbers,” *Environment, Development and Sustainability*, Cornell University, September 1999, quoted in the TNS Newsletter, Spring, 2000.

<sup>112</sup> Lester R. Brown, “Falling Water Tables in China May Soon Raise Food Prices Everywhere,” in *WorldWatch Alert*, May 2, 2000.

<sup>113</sup> Ibid.

<sup>114</sup> *WorldWatch Magazine*, March/April 2000.

<sup>115</sup> John Jeavons, “Small-scale, environmental, mini-farming,” Ecology Action Slide Show, 1988, slide number 66. Thousands of people have used the biointensive techniques developed by Ecology Action to help solve problems of hunger, malnutrition, erosion, and desertification. Books and information from Ecology Action are currently in use in over 100 countries to improve family nutrition, including Mexico, India, Kenya, the Philippines and China. Diverse groups such as UNICEF, the Peace Corps and Save the Children have used Ecology Actions materials “to help people grow food with knowledge and skill appropriate to their means.... There is a severe shortage of people who can grow food and knowledgeably teach others. Ecology Action gets many more requests for skilled people than can be met.”

<sup>116</sup> The World Bank, Environment Department, *Resettlement and Development: The Bankwide Review of Projects Involving Involuntary Resettlement, 1986-1993* (Washington, D.C.: The World Bank, 1994). Aaron Sachs in 1995 summarized the displacement problem this way: “Just within the past decade, infrastructure projects involving general urban development as well as road and dam construction, have displaced an estimated 80 to 90 million people globally.” Aaron Sachs, *Eco-Justice: Linking Human Rights and the Environment*, Worldwatch Paper #127 (Washington, D.C.: The WorldWatch Institute, December, 1995), p. 30.

<sup>117</sup> United Nations Commission on Population and Development, 33<sup>rd</sup> Session, March 3, 2000 [www.undp.org/popin/unpopcom/33<sup>rd</sup> sess/press/pop765doc.html](http://www.undp.org/popin/unpopcom/33rd_sess/press/pop765doc.html)

<sup>118</sup> Lester R. Brown, “Challenges of the New Century,” *State of the World 2000* (New York and London: W.W. Norton, 2000).

<sup>119</sup> In a speech delivered at the University of San Diego on September 25, 1998 by Dr. Oscar Arias to The World Affairs Council of San Diego and the University of San Diego entitled “Globalization and Challenges to Human Security.”

<sup>120</sup> Ibid.

<sup>121</sup> While the Friends Committee for National Legislation opposes mandated population controls, it supports access to responsible family planning, and access to education and services. See their specific recommendations: at [www.fcnl.org](http://www.fcnl.org)

<sup>122</sup> See [www.pbs.org/affluenza](http://www.pbs.org/affluenza) Both films are available in video format via their web site.

<sup>123</sup> Ibid.

<sup>124</sup> See John Tuxill, “The Biodiversity that People Made,” *WorldWatch Magazine*, May/June 2000.

<sup>125</sup> My own solar oven—a box type—works amazingly well. It reaches 300 degrees Fahrenheit, which is high enough for slow cooking almost anything. The biggest problem I have had is making sure a gust of wind does not blow it over, spilling the soup (or whatever I’m cooking) all over the interior. By adding a brick or two to weigh it down, I solved the problem. I have canned fruit in it, too (Newer types of solar ovens tend to reach higher temperatures allowing for canning of less acidic foods). Some Internet links for the curious include:

<http://www.sunoven.com/>

<http://members.aol.com/solarcook/index.htm>

<http://solarchef.com/>

<sup>126</sup> John Jeavons, *How to Grow More Vegetables than you ever thought possible on less land than you can imagine* (Berkeley, California: Ten Speed Press, 1991). A classic, this remains the best overall guide to sustainable small-scale agriculture. I am citing an older edition. This book is frequently revised and is also translated from English into many other languages. The method is called bio-intensive because it uses about one-eighth the water conventional agriculture requires, it yields between 3 and 16 times conventional agricultural methods, and it socks away in the soil as much carbon in 8 years as Nature does in 100.

<sup>127</sup> A good source for permaculture is Bill Mollison who wrote a book by the same name. On the web you can find additional information at [www.permaculture.org](http://www.permaculture.org)

<sup>128</sup> See for example, Lester R. Brown’s *Eco-economy; Building an Economy for the Earth* (New York and London: W.W. Norton & Company, 2001) with free e-book at [www.earth-policy.org](http://www.earth-policy.org)

<sup>129</sup> Alexander Cockburn, Jeffrey St. Clair and Allan Sekula, *5 Days that Shook the World* (London and New York: Verso 2000), p 7.

<sup>130</sup> *SOCIAL JUSTICE* #36, published by Ray and Kim Goforth, May 7, 2000. To subscribe to this electronic magazine, write to [goforth86@home.com](mailto:goforth86@home.com)

<sup>131</sup> Dee Hock, *Birth of the Chaordic Age* (San Francisco, Berrett-Koehler Publishers, 1999), p. 28.

<sup>132</sup> Ibid.

<sup>133</sup> Richard J. Barnet and Ronald E. Müller, *Global Reach; The Power of the Multinational Corporations* (New York: Simon and Schuster, 1974), p. 386.

<sup>134</sup> Ibid.

<sup>135</sup> Ed Ayers, “When Corporations Can’t Rule the World,” *WorldWatch*, May/June, 2000, editorial.

<sup>136</sup> In a speech delivered at the University of San Diego on September 25, 1998 by Dr. Oscar Arias to The World Affairs Council of San Diego and the University of San Diego entitled “Globalization and Challenges to Human Security.”

<sup>137</sup> Ibid.

<sup>138</sup> Arjun Makhijani, *From Global Capitalism to Economic Justice; An Inquiry into the Elimination of Systemic Poverty, Violence and Environmental Destruction* (New York and London: The Apex Press, 1992). The term, global apartheid, Makhijani acknowledges, came from an essay of the same title by Gemot Kohler and Bob Irwin brought to his attention.

<sup>139</sup> Richard K. Moore, “Understanding the Events of 9.11,” *New Dawn Magazine*, September 2001. For more on his views, see “www.cyberjournal.org viewed 28 September 2001.

<sup>140</sup> “A Deeper Look at System Condition Four,” *The Natural Step Newsletter*, Vol. 1, No. 11, Spring 2000, p. 12.

<sup>141</sup> Manfred Max-Neef, “Development and Human Needs,” in Paul Ekins and Manfred Max-Neef, editors. *Real-life Economics; Understanding Wealth Creation* (London and New York: Routledge, 1992), pp. 197-214.

<sup>142</sup> Ibid., p. 200.

<sup>143</sup> Ibid., p. 212.

<sup>144</sup> Arias, op.cit.

## Chapter 6

<sup>145</sup> Robert Ornstein and Paul Ehrlich, *New World, New Mind: Moving Toward Conscious Evolution* (New York: Touchstone, 1989), p. 6.

<sup>146</sup> Adapted from a slide presentation, copyright 1995 by Karl-Henrik Robèrt, John Holmberg and The Natural Step.

<sup>147</sup> Karl H. Dreborg, “Essence of Backcasting,” *Futures*, 28(9), 1996.

<sup>148</sup> John Holmberg, “Backcasting: A Natural Step in Operationalising Sustainable Development,” Chalmers University of Technology, Gothenburg, Sweden. Issue 23 pages 30-51

<sup>149</sup> K-H Dreborg and P. Steen, “Rationale of Backcasting [Draft],” fms 25, Stockholm, National Defence Research Establishment (Cited in John Holmberg, K-H Robèrt, and K-E Eriksson, “Socio-Ecological Principles for a Sustainable Society,” in Robert Constanza, et al. *Getting Down to Earth—Practical Applications for Ecological Economics* [Washington, D.C., Island Press, 1996].)

<sup>150</sup> An excellent resource for business owners and corporate executives, in this regard, is *The Natural Step for Business; Wealth, Ecology and the Evolutionary Corporation* by Brian Natrass and Mary Altomare. The cover of the book, fittingly, shows a compass pointing true north.

<sup>151</sup> A goal, Thomas Leonard of Coachville says, is a “push structure,” unlike a vision, which is a “pull structure.”

<sup>152</sup> See their supportive web site at [www.genie.org/](http://www.genie.org/)

<sup>153</sup> The quote is from the Resilient Communities: [www.resilientcommunities.org/Articles/clues.htm](http://www.resilientcommunities.org/Articles/clues.htm) See also their excellent suggestions for small groups using backcasting techniques as an on-site process

<sup>154</sup> The Natural Step/U.S. at [www.naturalstep.org](http://www.naturalstep.org)

## Chapter 7

<sup>155</sup> Were we to begin in the conventional way, we would start with the doing and the “who.” That is, as Dee Hock put it in 1996 at [www.sirius.com/~kaos3/final/creation.html](http://www.sirius.com/~kaos3/final/creation.html) Viewed on 6/24/2000: “In mechanistic, command-and-control organizations, we almost always work backwards, beginning with what we want to do (Practice), and who should do it (People) and how it should be organized (Structure). We create a traditional, hierarchical command-and-control form and begin to act, rarely getting to the deeper questions which are the essential half of the spiral. Lacking a clear sense of shared Purpose... we are forced to resort to rules and regulations, paper and procedures, command and control to hold the organization together and enforce conformity. Where the People are not capable of self- government, they are incapable of being governed. While we may reach some intended, short-term objectives through forced behavior, it is almost always with substantial, destructive, unforeseen consequences. In such command-and-control organizations, the intended consequences may or may not happen, the unintended consequences always do.”

<sup>156</sup> Ibid. Any quoted statements in this section relate to this citation.

<sup>157</sup> The Woodlands Conferences were initiated by George P. Mitchell, founder of Mitchell Energy and Development, The Woodlands’ Research Forest, the Woodlands (an experimental new town north of Houston, Texas), the Houston Advanced Research Center, and the Center for Global Studies. The conferences have focused on global environmental issues, sustainable development, and the social and policy implications of science and technology. Learn more at <http://harc.edu> (viewed on July 16, 2000).

<sup>158</sup> Willis Harman, *Global Mind Change; The Promise of the 21<sup>st</sup> Century*. 2<sup>nd</sup> edition (San Francisco: Berrett-Koehler Publishers, Inc., 1998). The remaining quotations in this section refer to this publication.

<sup>159</sup> In Zen Buddhism, Geraldine Kline reminds me, people do experience simple awareness as actually curative. See for example, E. Tolle’s *The Power of Now* (Novato, California: New World Library, 1999).

<sup>160</sup> M. Mitchell Waldrop, *Complexity; the Emerging Science at the Edge of Order and Chaos* (New York, A Touchstone Book, Simon and Schuster, 1992), p. 12.

<sup>161</sup> Dee Hock, *Birth of the Chaordic Age* (San Francisco: Berrett-Koehler Publishers, Inc., 1999), p. 24.

<sup>162</sup> United Nations Educational, Scientific and Cultural Organization, “Educating for a Sustainable Future: A Transdisciplinary Vision for Concerted Action” in EPD-97/CONF.401/CLD.1. November 1997. Original: English. Also available in French and Spanish with other language versions foreseen. Viewed June 12, 2000 at [www.unesco.org/epd/unesco/theme\\_a/mod01/uncom01t05s01.htm#tow](http://www.unesco.org/epd/unesco/theme_a/mod01/uncom01t05s01.htm#tow)

<sup>163</sup> See The Natural Step/US web site at [www.naturalstep.org](http://www.naturalstep.org) for examples as well as

Brian Nattrass and Mary Altomare, *The Natural Step for Business* (New Society Publishers, 1999).

<sup>164</sup> Gary Zukov, *The Seat of the Soul* (New York and London: Simon and Schuster, A Fireside Book, 1990)

<sup>165</sup> Erich Fromm, *To Have or To Be?* (London: ABACUS, 1979; first published, 1976), pp. 68-71.

<sup>166</sup> Zukav, *op. cit.*, p. 23. The remainder of this section is based on the same source.

<sup>167</sup> Richard Trowbridge, "The Adventure of Creating the Future" in *The Peace Network*, April 1994.

<sup>168</sup> E. O. Wilson, *Sociobiology: The New Synthesis* (Cambridge and London: The Belknap Press of Harvard University Press, 1975), p. 569.

<sup>169</sup> The International Coach Federation, the largest professional organization of personal and business coaches worldwide, enumerates their professional standards and ethics at [www.coachfederation.org](http://www.coachfederation.org)

<sup>170</sup> United Nations Educational, Scientific and Cultural Organization, *op. cit.*, several of the ethical principles were adapted from this work.

## Chapter 8

<sup>171</sup> Ken Wilber, *The Eye of Spirit; An Integral Vision for a World Gone Slightly Mad* (Boston and London: Shambhala, 1998), pp. 257-258. This paragraph and the next follow Wilber's discussion closely.

<sup>172</sup> Not counting Life Coaching, the *Encyclopedia of World Problems and Human Potential* enumerates 1,407 concepts relating to human development and 3,049 "modes of awareness." More than 15,000 cross-references inter-link a database of 4,456 entries." "Modes of awareness" indicate, according to the Encyclopedia, "the experiential states associated with different stages in the process of human development as perceived by different groups (and preferably using wording with which such groups would identify)." See [www.uia.org/iisdocs/iih.htm](http://www.uia.org/iisdocs/iih.htm) viewed July 18, 2000.

<sup>173</sup> The Personal Foundation Program, for example, can be worked with a Life Coach trained at Coach University. [www.coachu.com](http://www.coachu.com) Coaches from the Coaches Training Institute provide a similar service. [www.thecoaches.com](http://www.thecoaches.com)

<sup>174</sup> Manfred Max-Neef, "Development and Human Needs," in Paul Ekins and Manfred Max-Neef, editors, *Real-life Economics; Understanding Wealth Creation* (London and New York: Routledge, 1992), pp. 197-214. Unless noted otherwise, the material quoted in this section derives from this extraordinary author. I have substituted "Survival" for Max-Neef's term, "Subsistence."

<sup>175</sup> Manfred Max-Neef, *Human Scale Development; Conception, Application and Further Reflections* (New York and London: The Apex Press, 1991). In this more detailed version of needs satisfaction, Max-Neef refuses to call his system a model because models are static, yet the world and people are constantly changing.

<sup>176</sup> John Vasconcellos, "Preface," *The Social Importance of Self-Esteem*. Ed. by Andrew Mecca, Neil J. Smelser, and John Vasconcellos (Berkeley, University of California Press, 1989.) [www.lightparty.com/Visionary/ImportanceSelfEsteem.html](http://www.lightparty.com/Visionary/ImportanceSelfEsteem.html) viewed 14 Dec 97

<sup>177</sup> Caroline Myss, *Your Biography Becomes your Biology*, an interview with Michael Toms,

viewed 30 August 2000 at [www.newdimensions.org/article/myss.html](http://www.newdimensions.org/article/myss.html)

<sup>178</sup> Personal communication 28 May 2001

<sup>179</sup> *The Conquest of Happiness*, 1930 (New York: Bantam, 1968).

<sup>180</sup> John Holmberg, K-H Robèrt, and K-E Ericksson, "Socio-ecological Principles for a Sustainable Society," in R. Costanza et al. (Ed.), *Getting Down to Earth—Practical Applications for Ecological Economics* (Washington, D.C., Island Press, 1996). The quoted material on this and the following page is from this source.

<sup>181</sup> *Ibid.*

<sup>182</sup> Paul H. Ray and Sherry Anderson, *The Cultural Creatives: How 50 Million People Are Changing the World* (New York: Harmony, 2000).

<sup>183</sup> Paul H. Ray, "The Emerging Culture," *American Demographics*, February 1997. This and other quotes in this section are from Ray. Viewed March, 1998, at [www.demographics.com/publications/ad/97\\_ad/9702\\_ad/9702\\_a29.htm](http://www.demographics.com/publications/ad/97_ad/9702_ad/9702_a29.htm)

<sup>184</sup> *Laura Whitworth, Henry Kimsey-House, and Phil Sandahl, Co-active Coaching; New Skills for Coaching People Toward Success in Work and Life* (Palo Alto, California: Davies-Black Publishing, 1998), contains useful material and exercises for clarifying personal values. It does not, however, broach the topic of leaving behind old values and embracing new ones.

## Chapter 9

<sup>185</sup> This is my interpretation and embellishment of a diagram adapted from J. Jay Scott, Office Student Activities, University of Wisconsin, LaCrosse and Human Relations Training, as reported in Rosemary Williams, "Has Our Privilege Become a New Form of Internalized Oppression?" *Ministry of Money*, September, 2000, p. 7. Several paragraphs in this section revolves around Scott's model of externalized and internalized oppression.

<sup>186</sup> Helen Knode, "The School for Violence: A conversation with Riane Eisler," *LA Weekly*, Vol. 23, Number 45, Sept. 28 - Oct 4, 2001. Viewed at [www.laweekly.com](http://www.laweekly.com) on 3 October 2001. The quotes in the next two paragraphs also come from this source.

<sup>187</sup> Rosemary Williams, *op.cit.*

<sup>188</sup> Richard Carson, *Taming Your Gremlin* Reprint ed (San Francisco: HarperCollins, 1986).

<sup>189</sup> Robert Fritz, *The Path of Least Resistance* (New York: Fawcett Books, 1989).

<sup>190</sup> *Ibid.* Other fundamental choices Fritz mentions include: to fulfill a purpose in your life; to live in accordance with your highest spiritual truth; to have the life you want; to be the power in your own life; to act with direction, and so forth).

<sup>191</sup> Ken Wilber, *The Eye of Spirit; An Integral Vision for a World Gone Slightly Mad* (Boston and London, Shambhala, 1998). The quotes attributed to Wilber in this section are from *The Eye of Spirit*.

<sup>192</sup> Parker J. Palmer, "Life on the Mobius Strip," *The Inner Edge*, August/September 2000, p. 23. Author of *Let Your Life Speak*, Parker travels widely in his work on issues in education, community, leadership, spirituality, and social change.

<sup>193</sup> *Ibid.*

<sup>194</sup> Eugene D. Genovese, *Roll, Jordan, Roll: the World the Slaves Made* (New York: Vintage

Books, 1972; 1976 reprint), p. 566.

<sup>195</sup> A. Gayle Hudgens under the name Gayle Hudgens Watson, "Our Monster in Brazil," *The Nation*, January 15, 1977.

<sup>196</sup> Other major players in globalization include the Organization for Economic Cooperation and Development, with its secret Multinational Agreement on Investment (the MAI); the U.S. Congress's faulty and failed Fast Track legislation; and any number of Bretton Woods initiatives. See for example [www.brettonwoodsproject.org](http://www.brettonwoodsproject.org), <http://aidc.org.za/sapsn/> and <http://www.irn.org/wcd/> all viewed 23 December 2000. Also see *The Ecologist*, which devoted its September 2000 issue to exposing international "credit and aid" organizations. Part of this issue can be accessed at [www.theecologist.org/WTO.html](http://www.theecologist.org/WTO.html)

<sup>197</sup> Bruce Rich, "Still Waiting: the Failure of Reform at the World Bank," *The Ecologist*, September, 2000. Viewed at [www.theecologist.org/Stillwaiting.html](http://www.theecologist.org/Stillwaiting.html) on 24 December 2000.

<sup>198</sup> See [www.irn.org/wcd](http://www.irn.org/wcd) for excerpts from this report. Viewed 24 December 2000.

<sup>199</sup> Bruce Rich, *op cit*.

<sup>200</sup> Conn Hallinan, "The Global Goodfellas at the IMF," *The San Francisco Examiner*, January 11, 2002, viewable at [www.whatmatters.nu/wmemails/wmemailsindex.html](http://www.whatmatters.nu/wmemails/wmemailsindex.html) under WHAT MATTERS-43: How the IMF has Derailed Argentina.

<sup>201</sup> Anthony Faiola, "Despair in Once-Proud Argentina, After Economic Collapse, Deep Poverty Makes Dignity a Casualty," *The Washington Post*, Tuesday, August 6, 2002; Page A01 viewed on 6 August 2002 at [www.washingtonpost.com/wp-dyn/articles/A47822-2002Aug5.html](http://www.washingtonpost.com/wp-dyn/articles/A47822-2002Aug5.html)

<sup>202</sup> *Ibid*.

<sup>203</sup> John Cavanagh, Carol Welch and Simon Retallack, "The IMF Formula: Generating Poverty," *The Ecologist*, September, 2000. See [www.theecologist.org](http://www.theecologist.org) viewed on 24 December 2000

<sup>204</sup> Hallinan, *op. cit*.

<sup>205</sup> See, for example, the World Development Movement report on protests against IMF policies in poor countries at [www.wdm.org.uk/cambriefs/DEBT\\_unrest.htm](http://www.wdm.org.uk/cambriefs/DEBT_unrest.htm) viewed 24 December 2000. A non-technical discussion of the political and economic aspects of globalization can be obtained at [www.doccentre.org](http://www.doccentre.org). Deeper than Debt by George Ann Potter examines (for non-specialists) globalization and the perpetuation of inequalities and contains action suggestions. Contact [info@globalbookmarketing.co.uk](mailto:info@globalbookmarketing.co.uk). For an institutional perspective, see *Poverty Reduction and the World Bank: Progress in 1999* at [www.worldbank.org/poverty/library/progr/1999](http://www.worldbank.org/poverty/library/progr/1999).

<sup>206</sup> Joseph E. Stiglitz, *Globalization and its Discontents* (New York: W.W. Norton, 2002).

<sup>207</sup> For an insightful view of the WTO and the demonstrations in Seattle, see Alexander Cockburn, Jeffrey St. Clair, and Allan Sakula, *5 Days that Shook the World* (New York and London, Verso, 2000).

<sup>208</sup> The protester killed in Genoa, Carlo Giuliani, was not the first to die demonstrating. Katharine Ainger, writing in the London-based *Guardian* "cited other deaths that have gone virtually unreported in mass media, according to Norman Solomon in an essay making its way around the Internet entitled, "Dancing — or Yawning — on the Grave of Carlo Giuliani." Solomon quotes Ainger: "Recently, three students protesting against

World Bank privatization were shot in Port Moresby, Papua New Guinea. Young men fighting World Bank-imposed water privatization have been tortured and killed in Cochabamba, Bolivia.”

<sup>209</sup> Yaroslav Trofimov and Ian Johnson, “G-8 Protestors in Italy Describe Police Attack on Group in a School,” *The Wall Street Journal*, Monday, August 6, 2001, page 1. The financial paper also carried a story, though obscure, in their July 23<sup>rd</sup> issue.

<sup>210</sup> Reuters, the Associated Press, and many other press agencies reported this assault but *The New York Times* did not run a story on the event until August 8, 2001.

<sup>211</sup> Tofimov and Johnson, op cit.

<sup>212</sup> Starhawk, “Fascism in Genoa,” an article circulated on 28 July 2001 by the Genoa Social Forum at [www.genoa-g8.org](http://www.genoa-g8.org) and other web sites dealing with global justice: A-INFOs News Service at [www.ainfos.ca](http://www.ainfos.ca) viewed 17 August 2001; [www.nadir.org/nadir/initiativ/agp/free/genova/march.htm](http://www.nadir.org/nadir/initiativ/agp/free/genova/march.htm) viewed 20 November 2001; and Nicholas von Hoffman, “*Times* Finally Discovers a Police Scandal in Italy,” at [www.observer.com/pages/story.asp?ID=4792](http://www.observer.com/pages/story.asp?ID=4792) viewed on 26 November 2001.

<sup>213</sup> Reuters release from Rome, “Genoa Police Unit Trained by LAPD,” Tue Aug 07 2001

<sup>214</sup> Tofimov and Johnson, op.cit.

<sup>215</sup> Russell Mokiber and Robert Weissman, “The Global Justice Movement: Alive and Kicking,” *Focus on the Corporation*, 5 December 2002, posted at <http://lists.essential.org/pipermail/corp-focus/2001/000095.html>

<sup>216</sup> Ecology Action’s Sustainable Biointensive Mini-farming Program networks Biointensive collaborators in geographic regions throughout the United States and programs in Mexico, Kenya, India, the Philippines, Russia, plus individuals and projects in over 100 other countries. Their approach makes possible a 200–400% increase in caloric production per unit of area, 67–88% reduction in water consumption per unit of production, 100% increase in soil fertility while productivity increases and resource use decreases, 99% reduction in amount of energy used per unit of production, and 100 % increase in income per unit of area. Moreover, the method helps to reduce greenhouse gases by sequestering carbon deep within the soil. See their numerous publications and videos as well as [http://solstice.crest.org/sustainable/ecology\\_action/sum.html](http://solstice.crest.org/sustainable/ecology_action/sum.html) viewed 18 Nov 2001. Write to them at 5798 Ridgewood Road, Willits, CA 95490 USA for more information.

<sup>217</sup> Manfred A. Max-Neef, *Human Scale Development; Conception, Application and Further Reflections*, with contributions from Antonio Elizalde and Martin Hopenhayn (New York and London: The Apex Press, 1991). An imprint of the Council on International and Public Affairs, 777 United Nations Plaza, New York, New York 212/953-6920 and 57 Caledonian Road, London, N1 9BU, UK 01-837-4014

<sup>218</sup> See especially Lester R. Brown, *Eco-economy; Building an Economy for the Earth*. New York and London: W.W. Norton & Co., 2001; also available on the web at [www.earth-policy.oeg](http://www.earth-policy.oeg) Already wind generation is growing dramatically, 60 percent in 2001 alone. p. 103.

<sup>219</sup> “A Return to the Local: You Stay Home Too,” Commentary section of *WorldWatch Magazine*, September/October 2000, p.29. The following section quotes

liberally from this outstanding interview-like article based on a recent speech by Wendell Berry.

<sup>220</sup> *Ibid.*, p. 32

<sup>221</sup> An outstanding source for generating ideas about sustainable businesses is Paul Hawken, et al., *Natural Capitalism; Creating the Next Industrial Revolution* (Boston, New York and London: Little Brown and Company, 1999).

<sup>222</sup> "Securing social rights across Europe; How NGOs can make use of the European Social Charter." The information in this site is summarized from Tom Kenny, Oxfam UK and Ireland, Policy Department, Securing social rights across Europe. Viewed 10 September 2000 at [www.oxfam.org.uk/policy/research/charter/chartdoc.htm#target7](http://www.oxfam.org.uk/policy/research/charter/chartdoc.htm#target7).

<sup>223</sup> See [www.un.org/Overview/rights.html](http://www.un.org/Overview/rights.html) viewed 8 June 2001.

<sup>224</sup> Fritz, op. cit., p. 264

<sup>225</sup> "Climate to be Privatized in November," *The Financial Times*, 26 September 2000, viewed on 26 September 2000 at [www.financialcrimes.com/pages/story9.htm](http://www.financialcrimes.com/pages/story9.htm).

## Chapter 10

<sup>226</sup> Brenda Euland, "Listening with affection and excitement," *Strength to Your Sword Arm: Selected Writings*. New edition (Duluth, MN: Holy Cow! Press, 1992). [www.globalideasbank.org/1993/1993-21.HTML](http://www.globalideasbank.org/1993/1993-21.HTML) viewed 1 Jan. 2001.

<sup>227</sup> Aurora Levins Morales, in her book, *Medicine Stores; History, Culture, and the Politics of Integrity* (Cambridge, MA: South End Press, 1998), explains "agency" in greater detail.

<sup>228</sup> "The Science of Empowerment," from [www.heartmath.org](http://www.heartmath.org) viewed 29 May 1999

<sup>229</sup> Both coaching and Freire's system train people in the art of conversation (or dialogue) and aim to increase awareness, expand consciousness, and instill effective choice. Both strive for a shift from external prompting (from reactive "object-person") to internal "intentionality" (to the "subject-person" acting and choosing from grounded intention). Both are action- and reflection-oriented. Both encourage "creatively being" (as opposed to acquiescing to what everyone else is doing). Both refrain from the "banking" system where traditional trainers "deposit" knowledge and information in "empty accounts." Instead, both recognize that trainer and trainee can learn from and develop each other. The most obvious difference is the emphasis on the individual in coaching and Freire's emphasis on the group. A familiar maxim in coaching is "You create your own reality." In Freire's approach the precept is ratcheted up several notches to "We create our reality together." Social forces and self-determination take center stage in the Freirean model. While coaching models incorporate the personal, professional, and business domains, most do not embrace—as Freire does—the overarching social, economic, ecological, and political content of people's daily experience in the world. Traditional coaching values one-on-one connectivity. Freire's model exemplifies the perspective that everything is connected.

<sup>230</sup> Tom Heaney, "Issues in Freirean Pedagogy," *Thresholds in Education* viewed 5 January 2000 at <http://nlu.nl.edu/ace/Resources/Documents/FreireIssues.html> "Culture is used in its broadest, anthropological sense as including *all that is humanly fabricated, endowed, designed, articulated, conceived, or directed*. Culture includes products which

are humanly produced, both material (buildings, artifacts, factories, slum housing) and immaterial (ideology, value systems, mores), as well as materially derived products such as social class and the socio/political order.” [my italics]

<sup>231</sup> World Watch Institute Founder, Lester R. Brown, “Population Growth and Water Scarcity,” educational alert at [www.worldwatch.org/chairman/issue/000621.html](http://www.worldwatch.org/chairman/issue/000621.html) released June 21, 2000 and viewed on 18 January 2001.

<sup>232</sup> Aurora Levins Morales, *op cit.*

<sup>233</sup> Lama Surya Das, “Eight Steps to Enlightenment,” *New Age Journal*, Sept/Oct 1997

<sup>234</sup> Tom Atlee, co-founder of the Co-Intelligence Institute, at [www.co-intelligence.org/P-dialogue.html](http://www.co-intelligence.org/P-dialogue.html) viewed 15 January 2001.

<sup>235</sup> See [www.mondragon.mcc.es/ingles/mcc.html](http://www.mondragon.mcc.es/ingles/mcc.html) viewed on 13 January 2001. The Mondragon Cooperative Corporation (MCC) headquartered in the Basque Country near the border of Spain and France is a business group made up of 120 companies scattered around the world which produce industrial products, research and training, and financial and distribution services. Founded a half century ago as a stove factory by a young priest, MCC has grown into a global operation with annual sales exceeding six billion dollars and a total workforce in 1999 of 46,861. What sets it apart from other business organizations is its democratic system and its commitment to its workers in human and professional terms, new job creation, and the development of its social environment. Among the principles from which it operates are Sovereignty of Labor over Capital (people are more important than profit), Participatory Management, Payment Solidarity, Social Transformation, Universality and Education. Each worker has one vote in the General Assembly from which representatives are elected to handle various business aspects. In addition, each worker is paid and receives dividends based on how well the company does. There are no stockholders. A percentage of the profit is invested in the community, education and training. Father José María Arizmendiarieta, MCC founder, was fond of saying that “education is the natural and indispensable cornerstone for the promotion of a new humane and just social order.” To “democratize power,” he believed, knowledge has to be shared throughout the society. He walked his talk. When he first arrived in the Mondragón region in 1943, he established the Polytechnic School, the key source of skilled workers and managers for MCC’s cooperatives.

<sup>236</sup> Colman McCarthy, *The Baltimore Sun*, date unknown, sent to me by e-mail on 16 January 2001.

<sup>237</sup> Bstan-'dzin-rgya-mtsho Dalai Lama XIV, *Ethics for the New Millennium* (New York: Riverhead Books, 1999), pp. 130-31.

<sup>238</sup> Joanna Macy and Molly Young Brown, *Coming Back to Life; Practices to Reconnect Our Lives, Our World* (Gabriola Island, B.C., Canada: New Society Publishers, 1998), p. 61.

<sup>239</sup> Joseph Jaworski, *Synchronicity; the Inner Path of Leadership* (San Francisco: Berrett-Koehler, 1996)

<sup>240</sup> Distinction University, *The Daily Distinction*, “Synthesize vs. Process” issued 8 September 1997. From “Thomas Leonard’s” *Distinctionary*. [no place indicated] Copyright 1997.”

<sup>241</sup> Edward O. Wilson, *Consilience: The Unity of Knowledge* (New York: Knopf, 1998), p. 268-269.

<sup>242</sup> Lynne Twist, "Tips for Transformative Leaders" *Yes! A Journal of Postive Futures* Fall, 1999

## Chapter 11

<sup>243</sup> Depending on your answers, you may want to get professional help or try Re-evaluation Counseling, an inexpensive peer group approach. See [www.rc.org](http://www.rc.org) for the main organization. For a critique of the approach by reformers within the community, see [www.cocowebs.com/liberater/c/](http://www.cocowebs.com/liberater/c/) Both sites viewed on 23 March 2001.

<sup>244</sup> A. Gayle Hudgens, *Hemisphericity and its Implications for the Re-Design of Developmental Studies Programs*. Ph.D. Dissertation, The University of Texas at Austin, 1979, p. 7. Among the resources I consulted at the time were Robert E. Ornstein, *The Psychology of Consciousness* (New York: Harcourt, Brace, Jovanovich, 1972); Dahlia Zaidel and Roger W. Sperry, "Performance on the RCPM Test by Subjects with Cerebral Commissurotomy," *Cortex*, 9, No. 1 (March 1973); Joseph P. Bogen, "Some Educational Aspects of Hemisphere Specialization," *UCLA Educator*, 17, No. 2 (1975); and Adelaide Bry and Marjorie Bair, *Directing the Movies of Your Mind; Visualization for Health and Insight* (New York: Harper and Row, 1978).

<sup>245</sup> Hudgens, *Ibid.*

<sup>246</sup> Your way of seeing is actually part of your conscious perspective. The Brazilian educator Paulo Freire, who "coached" thousands of peasants to both read the word and read the world, saw two elements of a critical relationship with the world: consciousness of reality and action upon reality. He used "critical" in the educational sense meaning characterized by proficiency in careful evaluation and discriminating judgment. Freire further saw the evolution of a person's perspective or the emergence of critical consciousness taking place in three stages. The first stage is a *consciousness of limited perspective*. People in a survival mode focus on their next meal and shelter. When their subsistence needs are unsatisfied, their sublimated consciousness cannot conceive of challenging the world. People with a limited perspective are generally passive and apathetic. They sleepwalk through life with a limited perception and react to particulars. Freire observes that when these people amplify their power to perceive and respond to others' suggestions and questions related to their own context, they increase their capacity to act through dialogue not only with other people but with their own world. That is when they begin to react to the *general scope* of a particular problem. The second stage then is a *consciousness of over-simplification of problems*. Characteristics of this stage include nostalgia for the past, underestimation of ordinary people, extremist tendencies for squabbles or friendliness, disinterest in investigation and dialogue, and fascination with fanciful explanations of reality. We never completely move beyond this stage, for, as Freire said, "for all who enter the learning process, this remains a lifelong task." Nevertheless, many do experience the third stage: a *consciousness of deep interpretation of problems*. Characteristics of this stage include the testing of one's own findings, openness to revision and reconstruction, refraining from distortion when perceiving problems, avoiding preconceived notions when analyzing problems, and the rejection of passivity. Moreover, people in this stage practice dialogue rather than polemics, are

receptive to the new without rejecting the old, and express vulnerability, curiosity, deep inquiry, action, and enthusiasm. In Freire's stages there are overlapping degrees of consciousness, much as we see in the real world. He affirms the transforming role humanity plays in creating history and culture. He sees social transformation occurring through linking learning with action. His perspective is not one of "psychological determinism" or "divine or mechanical imperatives." Rather, he seeks the liberation of the mind through learning, dialogue, reflection, and social action in order to free people to determine a just and free society. See Tom Heaney, "Issues of Freirean Pedagogy," viewed on 24 January 1997 at [www.nl.edu/ace/Resources/Documents/FreireIssues.html](http://www.nl.edu/ace/Resources/Documents/FreireIssues.html)

<sup>247</sup> Alfred North Whitehead, *Adventures of Ideas* (New York: New American, 1933), p. 138.

<sup>248</sup> A. Gayle Hudgens, "Distinction Den," *TIFA Contact*, May-June 1998.

<sup>249</sup> See Center for Service and Leadership, George Mason University, "5 Stages of Group Development," at [www.gmu.edu/student/csl/5stages.html](http://www.gmu.edu/student/csl/5stages.html) viewed 22 March 2001.

<sup>250</sup> M. Mitchell Waldrop, "A Portrait of Dee Hock, Giving it 110%," n.d., n.p.

<sup>251</sup> For stronger more direct tactics and strategy, see 198 Methods of Nonviolent Protest and Persuasion at [www.peacemagazine.org/index.html](http://www.peacemagazine.org/index.html) viewed 23 March 2001.

## Chapter 12

<sup>252</sup> See particularly Paul H. Ray and Sherry Anderson, *The Cultural Creatives: How 50 Million People Are Changing the World* (New York: Harmony, 2000) for more information on this value cluster.

<sup>253</sup> Sober, Elliott and David Sloan Wilson. *Unto Others: The Evolution and Psychology of Unselfish Behavior* (Cambridge, Massachusetts and London, England: Harvard University Press, 1998)

## Glossary

<sup>254</sup> John Harte, "Defining the "B" Word," *Defenders Magazine*, Winter 1992/93.

<sup>255</sup> EPO and [www-v0ims.gsfc.nasa.gov/v0ims/glossary.of\\_terms.html](http://www-v0ims.gsfc.nasa.gov/v0ims/glossary.of_terms.html) was a major source of definitions for biosphere, climate change, greenhouse gases, ozone, photosynthesis, stratosphere, and troposphere,

<sup>256</sup> Adapted from definitions provided in Holmberg, Robert, and Eriksson, "Socio-Ecological Principles for a Sustainable Society," in Robert Constanza, et al. *Getting Down to Earth—Practical Applications for Ecological Economics* (Washington, D.C., Island Press, 1996.

<sup>257</sup> Holmberg, et al., op. cit.

<sup>258</sup> See Chapter Five, "System Conditions," for the four nonnegotiable conditions required for a sustainable society.

<sup>259</sup> See *WorldWatch*, May/June, 1999, p. 20 for a matrix of the worst pressures and a set of interactions.

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