

Rachel's Environment & Health News

#727 - The Importance Of Vision -- Part I

June 20, 2001

In recent decades, the natural environment has deteriorated and human poverty has increased, worldwide.[1] As a result, huge numbers of people have concluded that "business as usual" is not sustainable. People everywhere are devoting time and energy to questions of sustainability, but we still lack consensus on alternatives to the limitless growth of material consumption.

With its high per-person use of energy and materials and its relentless commitment to growth, the U.S. is probably among the least sustainable of human societies. Many people in the U.S. sense this, and they worry about the future for their children and their children's children. But so far we have not been able to focus our efforts and work together toward a different future. What we are missing is a shared vision of what "sustainability" entails for the U.S. Without a coherent, relatively detailed, shared vision of what a sustainable society would look like, we cannot generate the political will or united effort to carry us from here to there.

As Donella Meadows has written, "Vision is necessary to the policy process. If we have not specified where we want to go, it is hard to set our compass, to muster enthusiasm, or to measure progress. But vision is not only generally missing from policy discussions; it is missing from our culture. We talk easily and endlessly about our frustrations, doubts, and complaints, but we speak only rarely and with difficulty about our dreams and values." [2]

Robert Costanza of the Institute for Ecological Economics (University of Maryland) has emphasized the central importance of a shared vision: "The most critical task facing humanity today is the creation of a shared vision of a sustainable and desirable society, one that can provide permanent prosperity within the biophysical constraints of the real world in a way that is fair and equitable to all of humanity, to other species, and to future generations. Recent work with businesses and communities indicates that creating a shared vision is the most effective engine for change in the desired direction...." [3]

At the urging of Costanza and others, in January, 2001, a group of 45 individuals met in Oberlin, Ohio to begin to create a shared vision of a sustainable U.S. in the year 2100 -- 100 years in the future.[4] The meeting was facilitated by a technique called Future Search, which is a structured way of creating cooperative projects across the boundaries of geography, organization, culture, class, race, age, and gender.[5] After three intense days of work and some follow-up work by E-mail the Oberlin participants pulled together a consensus statement, agreed to stay in touch and to invite others to offer opinions and ideas about what life might be like in a sustainable U.S. We urge Rachel's readers to take this invitation seriously; see <http://iee.umces.edu/ESDA/>. (At the last minute, the Oberlin participants tentatively identified themselves as the ESDA Network -- ESDA being short for Envisioning a Sustainable and Desirable America -- but this name seems likely to change because the group is focused only on the U.S. and not on other parts of North, Central or South America. What do YOU think the name should be?)

Here and in the next few issues of RACHEL'S, we offer the first draft of the vision statement that emerged from the Oberlin future search conference; this draft was written mainly by Josh Farley of the Institute for Ecological Economics at University of Maryland, with some help from other participants. We emphasize that it is a first draft needing your critique:

THE VISION SO FAR

The most important outcome of the first ESDA future search conference was the creation of a shared vision of a sustainable and desirable America in the year 2100. Creating such a vision is an enormous undertaking, and what we produced is really only a rough sketch. An important part of our work will be to flesh out this vision, and make sure that it is a desirable vision to a representative majority of Americans. We hope you can take the time to read our

vision, and offer us your comments. Would you like to live in this world? Are there elements of our vision with which you disagree? Are important pieces missing? When you are done, please send your feedback to farley@cbl.umces.edu.

We have organized our vision into five separate components: Worldviews, Built Capital, Natural Capital, Human Capital and Social Capital.

WORLDVIEWS

Worldview plays a very important role in creating a sustainable and desirable America. What is worldview? Worldview is a belief system held by an individual, community or society that explains the world around us and our experiences and role in that world. Our worldview tells us who we are and what is the purpose of our existence. It tells us where we are: what kind of world and environment do we live in? It also tells us what is right and wrong about the world, and how to preserve what is right and fix what is wrong. Worldview is determined largely by the culture in which we are raised.

A worldview that is appropriate under one set of conditions may not be under another. This only makes sense. Worldview tells us what kind of world we live in, and the kind of world we live in is continually changing. Worldview is also intimately linked to culture and circumstance. Two hundred years ago, European Americans lived in a sparsely populated world of vast frontiers and untamed wilderness. Natural resources were limitless and humans, civilization, machinery and basic consumer goods were scarce. The rest of the world was far away and unimportant. Native Americans lived in a full world, surrounded by neighbors, both enemies and friends. Humans were part of a harmonious natural system that provided all of their needs under careful stewardship. African Americans lived under cruel bondage in a grossly unfair world. Different cultures viewed the same world in dramatically different ways. Over time American culture has converged somewhat, as has our worldview. Enormous differences still remain, but perhaps none as great as divided us in the 18th century. Now however, our world is dramatically different. Natural resources have become scarce, and humans and their accoutrements are now super-abundant. In today's age of rapid technological advance, population growth and resource consumption, the world appears to be changing faster than our worldview. Many components of our worldview are no longer in harmony with today's physically different world. In many cases, what was once reasonably viewed as a solution to our problems has now become a part of the problem.

The America we envision in 2100 is based on a very different way of viewing the world than is common today, one that is more in harmony with the physical constraints imposed by a finite planet.

Humans will re-establish a spiritual connection to nature. Our worldview will no longer divide the planet into humans vs. nature. People will recognize that humans are part of nature, one species among many, and must obey the laws imposed by nature. We will recognize that nature is not something to be subjugated, but instead is something we depend upon absolutely to meet both physical and spiritual needs. We will recognize that natural resources are scarce and must be invested in. Our goal will be to create conditions conducive to life in the broadest sense.

For centuries the worldview of mechanistic physics dominated Western society. Within this worldview, each action has an equal and opposite reaction, and only by studying systems at smaller and smaller scales, can we come to fully understand these reactions. As more and more people come to understand the inherent complexity of ecosystems and human systems, we will come to realize that results cannot always be predicted, and that irreducible uncertainty dominates the provision of life support services by healthy ecosystems. An ecological worldview of complexity and indeterminacy, inspired by nature as mentor --holistic, integrated

and flexible -- will replace the worldview of mechanical physics.

Individualism is appropriate and perhaps even necessary in a world of vast frontiers and unlimited elbowroom. Individualism will still be extremely important in 2100, but will be far more tempered by a concern for the common good. This will lead to a system where communities promote total individual liberty as long as individual actions do not have a negative impact on the community. Individuals in return will accept that they are a part of society, and it is unfair to impose costs on society for private gain. This attitude will be necessary if we are to wean ourselves of our dependence on heavily polluting single occupancy vehicles, for example.

Further, ever increasing consumption will no longer be considered an integral component of human needs as it is today. People will pay attention to their other needs and desires, such as joy, beauty, affection, participation, creativity, freedom, and understanding. Building strong community can help us meet these needs, while working ever harder to pay for more consumption deprives us of the time and energy required to fulfill them.

Thus, status will not be conferred by high incomes and high consumption (individual ends) but rather by contribution to civil society and community ends.

With the recognition that consumption beyond limit is not only physically unsustainable but also does little to improve our quality of life, we will understand that a steady state economy is our goal. A steady state economy does not mean an end to development, it simply means that we limit the input of raw materials into our economic system and their inevitable return to the ecosystem as waste to a level compatible with the ecological constraints imposed by a finite planet with finite resources. We must live within the carrying capacity of our planet. We do not know the carrying capacity, and the carrying capacity is subject to change. Therefore, adaptive management must be a guiding principle. The economy will be solar powered. Economic production will focus on quality, not quantity. Rather than focus on the production of goods, we will focus on the production of the services provided by goods. We do not need cars, we need transportation. We do not need televisions, we need entertainment. Goods are only a means to an end, and by recognizing this our economy can develop as never before without growing in physical terms.

[To be continued.]

--Peter Montague (National Writers Union, UAW Local 1981/AFL-CIO)

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[1] Lester R. Brown and others, *STATE OF THE WORLD 2001* (New York: W.W. Norton, 2001). ISBN 0-393-32082-0.

[2] Donella Meadows, "Envisioning a Sustainable World," in Robert Costanza and others, editors, *GETTING DOWN TO EARTH* (Washington, D.C.: Island Press, 1996), pgs. 117-128. ISBN 1-55963-503-7.

[3] Robert Costanza, "Visions of Alternative (Unpredictable) Futures and Their Use in Policy Analysis," *CONSERVATION ECOLOGY* Vol. 4, No. 1 (February 28, 2000), pgs. 5 and following pages. Available at http://www.consecol.org/Journal/vol4/iss1/art5/inl_ine.html.

[4] Conference facilitators: Sandra Janoff, co-director, Future Search Network (<http://www.futuresearch.net/>) and Ralph Copleman, consultant (<http://www.earthdreams.net/>). Conference participants: Audra Abt, senior, environmental studies, Oberlin College; Gar Alperovitz, professor of political economy, University of Maryland;

Mary Barber, executive director, Sustainable Biosphere Initiative, Ecological Society of America; Seaton Baxter, professor, University of Dundee, Scotland; Janine Benyus, writer; Paul W. Bierman-Lytle, environmental architect and planner; Grace Boggs, activist, scholar, writer, community organizer and speaker; William Browning, senior consultant, Rocky Mountain Institute; Diana Bustamante, executive director, Colonias Development Council; Warren W. Byrne, managing director, Foresight Energy Company; Mark Clevey, vice-president, Small Business Association of Michigan (SBAM); Jane Ellen Clougherty, research analyst, Center for Neighborhood Technology; Robert Costanza, director, University of Maryland Institute for Ecological Economics; Tanya Dawkins, senior vice-president, United Way; James Embry, board president, Boggs Center for Nurturing Community Leadership (Detroit); Jon Farley, President and CEO, Zarn Enterprises; Josh Farley, Executive Director, University of Maryland Institute for Ecological Economics; Harold Glasser, assistant professor (environmental studies), Western Michigan University; Becky Grella, executive director and president, Aiza Biby; Elaine Gross, executive director, Sustainable America; Gerald Hairston, urban gardener; Sarah Karpanty, co-director and secretary, Aiza Biby; Carol Kuhre, executive director, Rural Action; George McQuitty, professor (law/environmental education), University of St. Andrews (Scotland); Peter Montague, director, Environmental Research Foundation; Dondohn Namesling, Aiza Biby; David Orr, professor (environmental studies and politics), Oberlin College; John Petersen, assistant professor (environmental studies and biology) Oberlin College; William Prindle, Alliance to Save Energy; Tom Prugh, writer, consultant to Energy Information Administration; Jack Santa-Barbara, M.D.; Claudine Schneider, co-chair, U.S. Committee for the United Nations Development Program; Ben Shepherd, Rocky Mountain Institute; Megan Snedden, economic development coordinator, Colonias Development Council; Karl Steyaert, The Center for a New American Dream; Theodore Steck, M.D., professor (biochemistry and molecular biology), University of Chicago; Harvey Stone, vice president of marketing, BizBots; Paul Templet, professor (environmental studies), Louisiana State University; Mary Evelyn Tucker, professor, the Center for the Study of the World's Religions, Bucknell University; Sarah van Gelder, executive editor, YES! magazine; Rafael Vargas, Aiza Biby; Verlene Wilder, King County (Washington) Labor Council.

[5] Sandra Janoff and Marvin Weisbord, *FUTURE SEARCH: AN ACTION GUIDE TO FINDING COMMON GROUND IN ORGANIZATIONS AND COMMUNITIES* (San Francisco: Berrett-Koehler, revised edition, 2000; ISBN 1-57675-081-7) See <http://www.futuresearch.net>.

Rachel's Environment & Health News

#728 - A Vision Statement -- Part 2

July 04, 2001

Here we continue publishing the draft consensus statement that emerged from a 3-day "future search" meeting at Oberlin College in January. (See REHN #727, <http://iee.umces.edu/ESDA/>, and www.futuresearch.net.) The purpose of the meeting was to see if a fairly diverse group of people could reach any agreement about a sustainable and desirable world.

Many community activists who know what they are AGAINST (including us), may not be so sure what they are FOR. But if we don't know what we are for, how can we tell whether we are getting there? How can we devise strategies to reach goals that we have never specified?

The Oberlin group tentatively named itself ESDA -- Envisioning a Sustainable and Desirable America. The group has invited RACHEL'S readers to join in the visioning process. The ESDA group said, "We hope you can take the time to read our vision, and offer us your comments. Would you like to live in this world? Are there elements of our vision with which you disagree? Are important pieces missing? When you are done, please send your feedback to farley@cbl.umces.edu," the E-mail address of Josh Farley at University of Maryland.

The ESDA vision statement is organized into five parts: Worldviews, Built Capital, Natural Capital, Human Capital and Social Capital. In REHN #727 we began publishing the "Worldviews" section, which continues here:

An essential step to reaching a steady state economy is full cost accounting. We must recognize that production and consumption decisions incur environmental costs of pollution and resource depletion as well as social costs such as poverty and misery. At the very least, these costs must be accounted for in prices. The idea of full cost accounting must also be reflected in national accounts. The gross national product will be replaced by measures such as the Index of Sustainable Economic Welfare or the Genuine Progress Indicator. (See REHN #516.) Any effective measure of sustainable economic development must also include indicators of the health of the ecosystems that sustain us.

Finally, values will outweigh technical expertise in the decision making process. No longer will policy makers pay attention to economists' mathematical analysis of whether the costs of global warming outweigh the benefits. Instead, people will recognize that complex moral and ethical values cannot be boiled down to simple equations and pure rationality. Emotion will no longer be disdained in the decision making process, but will be recognized as a fundamental component of the human psyche. Science will still be respected within its sphere, but people will recognize that that sphere does not include moral decisions of right and wrong. Technology will be a servant helping us to meet the moral and ethical ends we decide on together, not an end in itself, not a master.

Though these are some characteristics of the dominant worldview we envision in 2100, we also envision a society robust enough, productive enough and tolerant enough to allow room for a wide range of people with differing world views to live together in harmony.

II. BUILT CAPITAL

Built capital is the human made infrastructure used to meet human needs. Though technological advance over the next hundred years will have a large impact on the type of built capital we find in Sustainable and Desirable America 2100, different priorities will have had as much or even greater impact.

COMMUNITIES : Communities will be dramatically redesigned to integrate living space, community space, and work space with recreational needs and nature. Workspace includes the stores that supply our every day needs as well as production facilities for most of the goods those stores supply. People will live very close to

where they work, where they shop and where they play. Communities in general will be much smaller, though specifics of community size and design are determined by local ecosystem limits.

In addition to these very practical aspects, communities will be designed as "soul satisfying spaces that resonate with our evolutionary history." Most communities will be surrounded by natural areas and incorporate parks and other green spaces (though this is a misnomer in drier parts of the country, where xeriscaping will be the norm) that will also serve as common space for community members. They will also foster social interaction and mutual dependence on community. Rather than something new, this is simply a resurgence of a millennial tradition of settlement patterns.

Because community space is abundant and well designed, private homes will in general be smaller (hence cheaper and easier to care for) though still palatial by world standards. Private lawns will virtually disappear, though lawn-like community green spaces will exist, and private gardens will abound. Private gardens in fact meet a substantial portion of community food needs.

Rapidly increasing energy costs will probably provide the initial incentive behind the unified, largely self-sufficient communities where walking and bicycle riding will effectively become the dominant forms of transportation, except in the worst weather. However, Americans will quickly discover that there were enormous benefits to such pedestrian communities. One of the biggest impacts will be simply getting people out of their cars. Walking to work, to the store, to community meeting places or to nature preserves on the outskirts of town will bring people into direct contact with the other members of the community. People walking together in the same direction naturally converse, establishing friendships, informing each other of current events, and discussing issues of relevance to the community. In fact, developing community and social capital will become one of many explicit goals for designing built capital.

Modern communities will be very healthy places for humans and other species. The invigoration of exercise and the nurturing of the human need for social interaction will replace the stress of hour-long commutes, road rage and the pollution of vehicle exhaust, improving both physical and mental health. Air quality will be very high. Many roads and parking lots will become redundant, and in their space will stand parks, streams and greenways, providing clean air, clean water, and healthy recreation, among numerous other vital ecosystem services. Dramatic reductions in impervious areas will reduce flooding and allow the land and the ecosystems it sustains to filter water, restoring the nation's waterways to health.

Of course, though the near extinction of the single occupancy vehicle will make many roads nothing more than useless pollution taking up space needed for forests and other natural areas, it will not be easy to clean up the mess. The energy costs of simply tearing up all the pavement may prove more than America can afford, and ecological restorationists will need to discover how plants can do much of this for us. Certain plants can thrive when planted directly into cracks in asphalt and others can be planted in holes dug through the roads, the roots mechanically breaking down both asphalt and concrete. Different plants will prove able to chemically break down the pollutants in the soil from both the asphalt and the vehicles that drove over it for so many years, and these will 'pave the way' (an archaic expression) for the return of native plant communities.

The huge cities of course will not disappear in one hundred years, but will be dramatically reorganized. In 2100 cities will be aggregations of smaller communities in close physical proximity, but where each community meets the housing, employment, social, recreation and shopping needs of those who live there. Natural areas will also make a big comeback in urban, and ecological restoration will play an important role in decontaminating urban brownfields. Huge cities will remain of course quite different from more isolated

smaller communities, with both advantages and disadvantages. Communities within a city will still be organized in many cases on ethnic or cultural lines, so cities will provide exceptional cultural diversity and richness. There will simply not be enough land within or nearby most cities to provide all the agricultural production and raw materials for manufacture they require, and much of this must still be shipped in.

TRANSPORTATION: As already mentioned in the description of communities, single occupancy vehicles will be exceedingly rare. The dominant modes of transportation within communities will be walking and bicycling, and between communities it will be high speed rail. Public transportation will be important within communities, and will be designed not just to transport passengers but to transport goods as well, making it convenient for grocery shopping and the like. Because so many people will use public transportation, it will be abundant and extremely convenient. Rail will be common, but so will buses and taxis powered by fuel cells. Traffic will be a thing of the past, so public transportation will get people around much more quickly than private vehicles do today, at a fraction of the cost. Dramatically fewer vehicles on the roads will also cut maintenance costs to a fraction of what they are today, and new roads will be unnecessary. Some people may still own private vehicles -- hydrogen powered hyper-cars -- but these vehicles will be expensive, and their owners will pay a higher share of costs of road maintenance. Most communities will have hypercars available for rent when private transportation is absolutely required, and when not in use for driving, the hypercars may prove a clean and efficient source of electricity for those rare occasions when local solar cells are insufficient.

ENERGY: Renewable resources will meet virtually all of the nation's energy needs, the conversion from hydrocarbons facilitated by continuous increases in efficiency of energy use. Photovoltaic tiles will be ubiquitous roofing materials, and roofs alone will meet over half the nation's energy needs. Much of electricity from wind farms and solar farms will be used to create hydrogen for fuel cells. Large scale hydropower will be decreasing in importance as more and more rivers are restored to their natural states, but low impact mini-turbines will be increasingly common. In spite of the abundance of non-renewable non-polluting forms of energy, energy efficiency research will still be important, the primary goal being to reduce the area of the country covered in solar cells.

INDUSTRY: Industry will change dramatically. Industrial design will be based on closed loop systems in imitation of nature, where the waste product from one industry becomes the feedstock of the next. Wasted heat from industrial processes will be used to heat nearby homes and workspaces. When possible, industrial production will use local materials to meet local needs, and process wastes (the few that are not put to use) locally. Most industries will be locally owned as well. While these characteristics will not always maximize productive 'efficiency', the benefits will outweigh the costs. First, local production will dramatically reduce transportation costs, helping to compensate for sometimes higher production costs. Second, it will make communities directly aware of the environmental impacts of production and consumption. Costs of waste disposal will not be shifted elsewhere. Third, industries will be part of a community. Most of them will be locally owned by the workers they employ and by the people whose needs they meet. Rather than simply trying to maximize returns to shareholders, industries will strive to provide healthy, safe, secure and fulfilling working conditions for workers. Those who produce goods and those who consume them will know each other, so workers will take particular pride in the quality of what they produce. Fourth, the decentralization of the economy will mean that the economy as a whole will be much less susceptible to business cycles, increasing job stability. Fifth, an emphasis on local ownership and production for local markets will reduce the importance of trade secrets and patents -- competition will be replaced to some extent by

cooperation. Finally, decreased competition will lead to a dramatic decrease in the size of the advertising industry. This means that money once spent on convincing people to buy one brand over another will be spent on making those products better, or simply not spent, making those products more affordable. [To be continued]

Rachel's Environment & Health News #729 - The Importance Of Vision -- Part 3 July 19, 2001

Can people reach agreement about what a sustainable and desirable U.S. might be like? (See REHN #727, #728, <http://iee.umces.edu/ESDA/>, and <http://www.futuresearch.net>.)

Here is part 3 of a draft vision statement issued by a group that has tentatively named itself ESDA -- Envisioning a Sustainable and Desirable America. The ESDA group says, "We hope you can take the time to read our vision, and offer us your comments. Would you like to live in this world? Are there elements of our vision with which you disagree? Are important pieces missing? Please send your feedback to farley@cbl.umces.edu," the E-mail address of Josh Farley at University of Maryland.

The draft vision statement is organized into five parts: Worldviews, Built Capital, Natural Capital, Human Capital and Social Capital. In our last installment, we began publishing the "Built Capital" section, which continues here:

INDUSTRY (continued): Markets and competition of course will still play an important role. Industries will be free to sell to distant communities, though having to pay the full cost of transportation will provide a natural barrier to this. Still, this threat of competition will mean that communities need not rely solely on the good will of local industries to keep prices low. Trade secrets will play less of a role in competition than in the past due to the resurgence of sharing information. The development of Linux today shows that freely sharing knowledge can lead to more rapid technological innovation than the profit motive provided by privatizing knowledge through patents. The problems with patents will become more obvious with the tremendous growth in green technologies. Green technologies will prove themselves capable of slowing climate change, reducing pollution, and decreasing our demands on scarce ecosystem resources. However, they will only be able to achieve these goals if used on a large scale. Patents on these technologies and the monopoly profits they imply will mean that much of the world will be unable to afford them. The global community will come to realize that it cannot afford the price of people not using these technologies. Fortunately, the free flow of information inspired by the Linux revolution will lead to impressive new innovations, often making patents obsolete.

Some industries will retain substantial economies of scale, using fewer resources per unit when produced in enormous factories. This may be the case for solar cells, for example. Large corporations may still exist to produce such goods, but will be subject to government regulation. Corporate charters will be issued for the short term only, and renewal will be tied to responsible action on the part of the corporation.

NEW CONSTRUCTION : With scarcer resources, the practice of destroying still useful buildings to build others on the same site will diminish, and shrinking populations will further decrease the need for new construction, but from time to time new buildings will still be required. Ecological design will be the dominant principle, but can lead to dramatically different outcomes. For example, some buildings will be designed for permanence, and must meet the needs of several generations. More temporary structures will be designed to be recyclable and/or biodegradable. For example, straw bale houses with stucco and thatch roofs will have modular electric and plumbing systems that are easy to remove. The remaining structure can then be knocked down and plowed under, enriching the local soil.

III. NATURAL CAPITAL

Natural capital is all of the goods and services provided by nature that contribute to the well-being of humans and every other species on the planet. This includes both mineral and biological raw materials, renewable (solar and tidal) energy and fossil fuels, waste assimilation capacity, and vital life support functions (such as global climate regulation) provided by well-functioning ecosystems.

In America 2100 the absolute essentiality of natural capital will be so completely accepted that it will be taken for granted that we must protect it if we are to survive and thrive as a species. Any school child will be able to tell you that you cannot make something from nothing, so that all economic production must ultimately depend on raw material inputs. Economic production is a process of transformation, and all transformation requires energy inputs. It is equally impossible to make nothing from something, so that every time we use raw materials to make something, when that product eventually wears out, it returns to nature as waste. It is therefore incumbent upon us to make sure that those wastes can be processed by the planet's ecosystems. Waste absorption capacity is only one of many critical but still scarcely understood services provided by intact ecosystems. These services include regulation of atmospheric gasses, regulation of water cycles and the provision of clean water, stabilization of the global climate, protection from ultra-violet radiation, and the sustenance of global biodiversity, among many others. Without these services, human life itself would be impossible.

While by 2100 we will have made substantial efforts to protect ecosystem services, uncontrolled human economic activity will still have the capacity to damage them sufficiently to threaten our civilization. Obviously, well-functioning ecosystems are composed of the same plants and animals that serve as raw material inputs to the economy, and all else being equal, increasing raw material inputs means diminished ecosystem services. Extraction of renewable raw materials directly diminishes ecosystem services, while the extraction of mineral resources unavoidably causes collateral damage to ecosystems. Ecosystem services are also threatened of course by waste outputs. While waste outputs from renewable resources are in general fairly readily assimilated and broken down by

healthy ecosystems, ecosystems have not evolved a similar capacity to break down waste products from mining and industry, concentrated metals, fossil fuels and synthesized chemicals. America in 2100 will have dramatically decreased its reliance on these slow-to-assimilate materials, but pollutants do not respect political boundaries, and we will still suffer from the impacts of their use in other countries.

Natural capital is also economically important because it provides so many insights into the production process. The more we learn about how nature produces, the more we will realize the inefficiency, toxicity and wastefulness of current production techniques. In 2100, it will become a standard approach when seeking to solve a production problem to examine healthy ecosystems and strive to understand how they 'solve' similar problems.

A recognition and high level of awareness of the importance of natural capital will lead to dramatic changes in the way it is treated. The negative environmental impacts of non-renewable resource use, even more than their growing scarcity, will have forced us to substitute renewable resources for non-renewables, reversing the trend that began with the industrial revolution and making renewables more valuable than ever. Passive investment in natural capital stocks -- i.e., simply letting systems grow through their own reproductive capacity -- will be insufficient to meet our needs. Active investment will be required. America will be actively engaged in restoring and rebuilding its natural capital stocks by planting forests, restoring wetlands and increasing soil fertility. The former philosophy of natural capital as free goods provided by nature will have disappeared. This change will have required and inspired significant institutional changes.

For example, notions of property rights to natural capital will change. Most forms of natural capital will be recognized as intergenerational assets. Legislation will explicitly prohibit Americans from extracting renewable resources beyond the rate at which they can replenish themselves, and of leaving future populations dependent for survival on non-renewable resources in danger of exhaustion and for which no substitutes exist. This legislation will extend to imported products as well. Property rights to land will be explicitly extended to future generations, and there will be steep fines or even criminal penalties for leaving land in worse condition than when it was purchased. While ecological factors will determine the total amount of natural capital that we can safely deplete, market forces will still determine how that natural capital should be allocated. In addition to these fixed limits on resource use, green taxes force both consumers and producers to pay for the damage caused by resource depletion and waste emission. When these costs are unknown, those undertaking potentially harmful activities will be forced to purchase bonds or insurance that guarantee reimbursement to society for whatever damages do occur.

These policies will dramatically increase the costs of degrading natural capital. As a result, America will be

rapidly weaning itself from dependence on non-renewable resources, having developed renewable substitutes for most of them. America will become a global leader in green technology. We will be well on the way in our transition to the 'carbohydrate' economy. This term is actually a bit of a misnomer. While we will rely heavily on carbohydrates produced by plants as a feedstock for many industrial processes that currently rely on hydrocarbons, our ability to build non-toxic, biodegradable carbon polymers from CO₂ extracted directly from the atmosphere will actually be more important. As this technology comes into its own, we expect that in the long run, it will help to stabilize and even reduce atmospheric CO₂. Whether or not we will be able to reduce global warming faster than many threatened species and ecosystems go extinct or adapt will still be an open question, but with growing cause for optimism.

Our understanding of ecosystem function will have exploded by 2100, and we will continue to discover new ecosystem services. Yet for every puzzle we solve, we will uncover three others. And we will remain unable to accurately predict impacts of human activities on specific ecosystems, in part because of ongoing changes induced by continued global warming. While the rate of warming will have slowed, ecosystems will still be slowly adapting to its impacts. The precautionary principle therefore will play a critical role in deciding how we treat the environment when there is doubt over the potential impact of resource extraction or waste emissions on ecosystem goods and services, we will choose to err on the side of caution.

Continuing ecological restoration efforts will have begun to reverse the massive degradation of 1950-2050, but continued global warming will still threaten dangerous disruptions in ecosystem services. In keeping with the precautionary principle, Americans will consider it an imperative to develop extensive ecological buffers. If global warming leads to dramatic changes in weather patterns and climates, plant and animal communities may only be able to survive if they have uninterrupted wildlife corridors through which to migrate to more favorable climates. Also, almost total reliance on renewable resources will require high sustainable yields of raw materials that can only be provided by vast areas of healthy ecosystems.

[To be continued.]

Rachel's Environment & Health News

#730 - A Vision Statement -- Part 4

August 01, 2001

Here is part 4 of a draft vision statement issued by a group that has tentatively named itself ESDA -- Envisioning a Sustainable and Desirable America. (See REHN #727, #728, #729, <http://iee.umces.edu/ESDA/>, and www.futuresearch.net.) Having a shared vision of the future -- a goal -- is essential. If we don't know where we are trying to go, how can we tell whether we are getting there or not?

The ESDA group says, "We hope you can take the time to read our vision, and offer us your comments. Would you like to live in this world? Are there elements of our vision with which you disagree? Are important pieces missing? Please send your feedback to farley@cbl.umces.edu," the E-mail address of Josh Farley at University of Maryland.

The draft vision statement is organized into five parts: Worldviews, Built Capital, Natural Capital, Human Capital and Social Capital. In this installment, we begin publishing the "Human Capital" section:

IV. Human Capital

Human capital has been defined as the practical knowledge, acquired skills and learned abilities of an individual that make him or her potentially productive and thus equip him or her to earn income in exchange for labor. In America in the year 2100, the definition of human capital itself will change -- no longer will there be an emphasis solely on productivity in terms of income exchanged for labor. The primary emphasis instead will be on knowledge, skills and abilities that make people productive members of society, that is, that help people contribute to the goals of society. The goals of America in 2100 will be far more than simply earning income.

Education will be integrated into everyday life, not simply something we do for a few hours a day before we grow up. And it will not be always confined to classrooms -- schools will be an institution, not a physical place. Nature offers us an amazing laboratory every time we step outside, and every bit as much in urban settings as in rural. This will be even more true in 2100, when our communities are designed to maximize exposure to healthy ecosystems. Education about civic responsibilities and roles will be heavily stressed, and will be taught by direct exposure to the decision making process or hands-on participation in activities that benefit the community. Youth will be schooled in civic responsibility by actively participating in the community. And what better place to learn skills required for economic production than at the workplace? Apprenticeships will be an integral part of the learning process. Technology will also play an important role in education. Virtual learning environments will be used where appropriate, but will by no means replace direct interaction.

Education and science will no longer focus solely on the reductionist approach, in which students are only taught to analyze problems by breaking them down into their component parts. While the reductionist approach and analysis will still play an important role in education, the real emphasis will be on synthesis, how to rebuild the analyzed components of a problem into a holistic picture again. Synthesis is critical for understanding system processes, and system processes dominate our lives. In natural systems individual trees create a forest and all the services that forest provides. In economic systems production is not simply the transformation of raw materials into products: production exhausts resources, creates pollution, and alternative production processes can make working life pure drudgery, or a chance to participate with others to meet society's needs and to express our own creativity. And social systems are certainly far more than an aggregation of autonomous individuals.

Beyond analysis and synthesis, learning will also emphasize communication. Researchers skilled at communication will be able to more readily share ideas, and ideas grow through sharing. Workers skilled at communication will be able to work together to solve production problems. Citizens skilled at communication will be able to contribute to the ever-evolving vision of a sustainable and

desirable future that will be the motivating force behind policy and governance. Citizens will also be able to communicate their knowledge with each other, so that education, livelihood, family and community become a seamless whole of lifelong learning and teaching, everyone simultaneously a student and teacher.

Education will also emphasize much more than just pure scientific understanding of the material world. Critical thinking and research will be important, but so will creative expression and curiosity. Knowledge and science will not be portrayed as value neutral endeavors -- students will learn that the very decision of what to study is a moral choice with broad implications for society. The goal of education will be to cultivate wisdom and discernment, to cultivate the emotional maturity to allow responsible decision making in every type of human endeavor.

The whole notion of work will also change, and the word itself will lose the connotation of an unpleasant chore. People will recognize the absurdity of applying technology to the problem of producing more goods to be consumed during leisure time regardless of the drudgery involved in production itself. Instead, to recruit desired workers, industry will be forced to redirect some of its technological prowess towards making work itself a pleasurable part of our days that engages both mental and physical skills. A typical job will involve far more variety than one of today, not only to make work more exciting and interesting, but also to take advantage of the full range of a person's skills. There will also be less distinction between what today would be considered gainful employment and volunteer work. Everyone will participate in civil society, both in decision making and in maintaining the public space. This will not be an onerous chore, but a pleasurable time for socializing with neighbors and community. Nor will it take time away from our private lives, since the typical work week in traditional 'jobs' will average only fifteen hours.

Education will de-emphasize the existing 'more is better' mindset, and a greater understanding of the linkages between economic production, nature, human development and society will make people more aware of the true costs of excessive consumption. With 100 additional years of technological advance and diminished 'needs,' society will be able to provide a satisfactory living wage to all who work, and meet the basic needs of those who do not. Participation in the various types of work will be expected and supported, but not forced. As work will be more of a fulfilling experience than an onerous necessity, there will be little resentment of those who do not work, but rather a feeling of concern that these people are not developing their potential as humans. Living in more tightly knit communities where social goals are actively discussed, people will understand better the importance of their work, and feel greater obligation to contribute to the common good. Remuneration for work will be restructured to provide the greatest awards to those who provide the greatest amount of service to the community, such as teachers, child care providers, etc.

Human capital is also directly related to human populations. The population in America in 2100 will have stabilized at a level compatible with the carrying capacity of our resources and ecosystems.

V. SOCIAL CAPITAL

Social capital refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. Social capital is not just the sum of the institutions which underpin a society; it is the glue that holds them together.

Strong social capital plays a critical role in our vision of a Sustainable and Desirable America in 2100, as has been hinted at in the previous discussions of capital. In America in 2001, the dominant form of social capital in the employment and economic sphere is simply the market. The interaction between employer and employee is that of buying and selling labor. For the most part,

employer 'loyalty' exists only as long as the continued employment of the employee increases profits. Employee 'loyalty' exists only as long as no other job offers a greater salary or fringe benefits (which may include location, working conditions, etc.).

The interaction between producer and consumer is even more market based. People buy a product only as long as it is perceived to provide the greatest value in monetary terms, though admittedly advertising may play virtually as large a role in shaping perceptions as the actual price and quality of the product. In America in 2100, worker ownership of many industries and local production for local markets will change much of this. Worker owned enterprises will logically pay more attention to worker well-being than enterprises driven by the need to generate shareholder profit. Well-being will of course include profit-shares, but will be increased by working conditions that are healthy, stimulate creativity, and create feelings of participation and identity.

While not all enterprises will be worker owned, when a significant percentage of enterprises offer these conditions, it will put pressure on the others to do so as well. In the absence of strong social capital, local production for local markets could be a disaster.

In many cases, it might be inefficient to have a number of firms providing similar products for a small community. This could lead to monopoly provision of certain goods. If the market remained the dominant form of social capital driving interactions between producers and consumers, high profits and poor quality would result. However, if worker/owners also live in the local community, they will have to answer to their neighbors for both price and quality of what they produce. High quality production will be a source of pride, while low quality and high prices will be perceived as incompetence and laziness, decreasing the individual's social standing in the community, and reducing their social capital.

Local currencies will also contribute to locally based production and consumption. Such systems already exist in many communities, such as Ithaca, New York [see <http://lightlink.com/hours/ithacahours/>]. These currencies are backed only by trust that other members of the community will accept them in exchange for goods and services, and therefore require strong social capital to function. They also build social capital every time a community member accepts the currency. They are virtually immune to national and global economic instability, and provide communities with greater autonomy. [To be continued.]

Rachel's Environment & Health News

#731 - A Vision Statement -- Final Part

August 15, 2001

Can people agree what a sustainable and desirable U.S. might be like? (See REHN #727, #728, #729, #730, <http://iee.umces.edu/ESDA/>, and www.futuresearch.net.)

Here is part 5 (the final part) of a draft vision statement issued by a group that has tentatively named itself ESDA (Envisioning a Sustainable and Desirable America). The ESDA group says, "We hope you can take the time to read our vision, and offer us your comments. Would you like to live in this world? Are there elements of our vision with which you disagree? Are important pieces missing? Please send your feedback to farley@cbl.umces.edu," the E-mail address of Josh Farley at University of Maryland.

The draft vision statement is organized into five parts: Worldviews, Built Capital, Natural Capital, Human Capital and Social Capital. In our last installment, we began publishing the "Social Capital" section, which continues here:

Thus, for our vision of local production for local markets to work, social capital must be strong. As discussed in the section on built capital, the very physical structure of communities will work to create that social capital. Abundant community spaces, parks, and recreation areas will stimulate social interaction, build friendships, and generate a sense of responsibility towards neighbors and community. With single occupancy vehicles almost gone and people living in smaller communities, just getting from place to place will bring us in close contact with our neighbors. In America 2001, public transportation is primarily found only in large cities, and fellow passengers are strangers, not neighbors. Under these circumstances, public transportation does little to build social capital, but this will not be the case in 2100.

America in 2100 will maintain the ethnic and cultural diversity that currently enriches our nation. Some neighborhoods will coalesce around different ethnicities and cultures, and these too will serve as sources of social capital. However, America will have rid itself of the racism, sexism, regionalism and other prejudices that are all too prevalent today.

Americans will have more time for family, and family life will be characterized by more balanced gender roles.

The process of government will itself create social capital. America in 2100 will no longer be a weak representative democracy, but a strong, participatory one. In a participatory democracy, the people must discuss at length the issues that affect them to decide together how they should be resolved. In today's world of high-pressure jobs, little free time, and large communities of anonymous strangers this approach to government seems impractical, unwieldy and too demanding. In our vision of the future, with smaller communities of neighbors, a far shorter work week, and engaged, active citizens, participatory democracy will be perceived as a privilege of citizenship and not an onerous chore. Of course, for this to work presupposes that civic education forms an essential part of development of human capital from childhood on. This approach to government will be particularly effective at the local level. As citizens come together in regular meetings to discuss the issues and work together to resolve them (even when substantial conflict exists), it will create strong bonds of social capital, and will play an essential role in forging a sense of community. Government of course implies action, and action implies purpose. Purpose must be defined by the people, who in these civic meetings will also forge a shared vision of the future to guide their actions. This vision cannot be static, but must adapt to new information and new conditions as they emerge.

Of course, not all issues can be decided on the local level. Institutions are required at the scale of the problems they address. It is at the local level where people will feel the consequences of ecosystem change, for example, but causes may be distant, perhaps in other countries. On the national level it is not feasible to bring together millions of people to discuss the issues and decide on

actions, so some form of representation will be required. But if representatives are chosen through direct participation by people to whom they have strong social ties and obligations, these representatives are far more likely to truly represent their communities and not some large corporation that funds their rise to power.

Conclusion

We hope you share our vision for a sustainable and desirable America. Our goal is to create a shared vision, and if you do not believe this future America would be a desirable place to live, we need your feedback. We would also appreciate your positive feedback. The envisioning process is dynamic, and we have only just begun. [End of draft vision statement.]

RACHEL'S Editor's Comments

So there you have it, a vision statement of what the U.S. might be like 100 years from now. (See also REHN #727, #728, #729 and #730.) It is only a first draft. Please pull together your thoughtful comments on this vision and E-mail them to farley@cbl.umces.edu, which is the address of Josh Farley at University of Maryland. They will be posted on the web at <http://iee.umces.edu/ESDA/> for others to consider. A vision statement must evolve as time passes, adapting to new circumstances, new perceptions, new possibilities.

Several people have sent us comments already, and the comment I want to address here is this: How can we get there? What could we be doing to promote a U.S. that works for us and our descendants ecologically, economically, morally, culturally, and politically?

Naturally, there are many things that we can each be doing to bring about a different world. But I believe one key idea underpins them all, and has been badly neglected: locally-based democratic decision-making, as discussed briefly in this week's installment of the vision statement.

I believe real democracy is the thing we need the most, and the thing we study and work on the least. Perhaps we work on "democracy" so little because we already live in a democracy. We think of the U.S. as a "democratic" country, but what does democratic participation in the U.S. really mean? It means paying your taxes, occasionally voting for one candidate or another, and the rest of the time minding your own business. This is what Benjamin Barber[1] calls our "thin democracy" --it was designed by the Founding Fathers to pretty much exclude most people.

But times have changed. We no longer live on a planet that seems infinitely large and mostly uninhabited. Now we are faced with adjusting our lives to new realities -- a planet that is filling up with people, a planet of finite size with finite resources (some renewable and some not), with a finite capacity to absorb wastes. Now the main task we all face is how to arrange our lives so that our communities (and nations) can become sustainable, meaning they can sustain their members into the foreseeable future. (If you don't think the question of finite resources is important, ask yourself if the recent atrocities in New York, Washington, and Pennsylvania would have been as likely to occur if the industrialized nations weren't deriving 54% of their energy from the Middle East.)

Because we do not know the limits of ecosystems, we can never define precisely what "sustainable" means. We have to discover -- and invent -- its meaning as time passes. One book seems especially relevant here: **THE LOCAL POLITICS OF GLOBAL SUSTAINABILITY** by Thomas Prugh, Robert Costanza and Herman Daly (Washington, D.C.: Island Press, 2000; ISBN 1-55963-744-7). I'm going to call this book PCD, shorthand for the names of its authors. Everyone who cares about sustainability would benefit by reading this short, meaty book.

PCD points out that the problems we face -- such as

overconsumption, overpopulation, fossil fuel use, and destruction of species -- are not mainly technical problems. If they were, we'd be able to solve them within a few years. The systems involved are complex and interconnected in ways that make their behavior inherently unpredictable.

"As a result," says PCD, "the politics of communities' and nations' efforts to address their sustainability problems is much more important than any technical expertise they can muster. There are experts aplenty, but we cannot simply consult them for the 'best' solutions, because nobody can know what those solutions are in any complete or final sense. The solutions must be explored and tested through a process of continuous adaptive learning. Deciding which options to try means making political choices that affect everyone and require wide support and engagement. A generation after its coinage, the slogan Power to the People takes on a new meaning," says PCD (pg. xiv).

PCD goes on: "Because there can be no permanent solutions in a world that is ecologically and culturally dynamic, these choices will have to be made again and again as circumstances evolve. Therefore, moving toward sustainability will require a radically broadened base of participants and a political process that continuously keeps them engaged. The process must encourage the perpetual hearing, testing, working through, and modification of competing visions AT THE COMMUNITY LEVEL.... The key seems to be structuring political systems so that people's decisions matter.... We believe communities are the primary locus of responsibility for creating a sustainable world. The admonition to Think Globally, Act Locally retains its wisdom despite years of bumper-sticker overexposure. Directed sustainability[2] will come about in neighborhoods or not at all" (pg. xv).

What does all this mean? It means the most important issue we all face is democratic control of our lives. In a very real sense, all the issues of poverty, environment, justice and community boil down to failures of democratic participation. When we complain about corporate power and the destructive effects of "globalization" we are complaining about the absence of democratic decision-making (decision-making by those who are affected by the decisions).

We all want democracy. But how much time do we devote to studying how to make democracy really work? How much effort do we spend trying to re-arrange our local communities so that we make decisions by talking together? These are good questions.

In sum, how can we turn our vision of a sustainable and desirable world into reality? We can start by learning how to make democracy work -- really work -- in local communities. How can that begin to happen? How can we shift our society from "thin democracy" to "strong democracy"?[1] This is the key question we can all be starting to answer in our own way. Please give us your thoughts, including examples that you know are already working. We'll tell others what's working now.[3]

--Peter Montague

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[1] Benjamin R. Barber, *STRONG DEMOCRACY: PARTICIPATORY POLITICS FOR A NEW AGE* (Berkeley, Calif.: University of California Press, 1984; paperback edition 1985). ISBN 0520056167. And be sure to see Benjamin R. Barber *A PLACE FOR US; HOW TO MAKE SOCIETY CIVIL AND DEMOCRACY STRONG* (New York: Hill and Wang, 1998). ISBN 0809076578.

[2] "Directed sustainability" means sustainability that humans choose. As PCD points out, "If we fail to achieve sustainability, nature will impose it; but we would probably prefer the version we

choose."

[3] We have a new section on the Rachel web site called "What's Working Now" a catalog of good ideas that are actually working somewhere in the real world. Check it out at <http://www.rachel.org>.