Chapter Seven

Ecology and commoditization

Contents

7.1 Sustainable development and the challenge of ecology 173
7.2 Ecological principles and economic implications 174
  7.2.1 Economic systems are subsets of ecological systems: the principle of ecosystem primacy 175
  7.2.2 Energy is the primary natural resource: the principles of entropy and conservation 179
  7.2.3 Efficiency is enhanced by working with natural flows and processes rather than against them: the principles of appropriate technology and ecosystem thinking 187
  7.2.4 Contradictory goals cannot be maximized at the same time and must be balanced: the principles of homeostasis and optimality 195
  7.2.5 Scale and level of organization matter: the principle of cooperative hierarchical organization 197
7.3 Conclusion 199

7.1 Sustainable development and the challenge of ecology

We certainly know enough now about ecology, and we are clever enough about the workings of the world to know the sorts of changes we need to make in order to create a more ecologically sound and sustainable way of life. We have known for some time that humans, like all life forms, extract resources from our environment and return wastes. If we take faster than the Earth can give and/or leave more than the earth can process, the balance of nature teeters and our lives become more difficult and less stable.

For development to be ecologically sustainable, knowledge gained from careful study of the impact of human activities on the health and functioning of ecosystems must be fed back into the development process and used to adjust
those activities. The capacity to learn and adapt is the starting point for sustainable development. Sustainable development requires a change in the relationship between human beings and the biosphere, a change from a relationship of parasitism to one of symbiosis. In a parasitic relationship, one party prospers at the expense of the other; in a symbiotic relationship, each enhances the other's capacity to thrive. To consciously design our communities, industries, and ways of life so as to benefit the natural world should be the highest goal of sustainable development. Short of that, we can at least try to do less harm.

Ecology might be the most politically challenging of the sciences, because its discoveries suggest that contemporary modes of human living cannot survive long into the future. Ecology also gives us the basic tools with which to consciously redesign our ways of life to disrupt the earth's natural cycles far less than we do today. However, the lessons from ecology fly in the face of the institutions and practices that maintain an economic system driven by commoditization. While commoditization virtually demands that more and more of the earth's resources be wrested from their tangle of coevolved ecological relations, ecology shows how this may lead to long-term losses in ecosystem productivity and eventually in ecosystem collapse. We may never fully grasp how utterly dependent we are on healthy ecosystems until they start to unravel. This lesson has not been lost on people in the Sahel and other places where the basic structures and functions of ecosystems have been destroyed. The problem of commoditization must be addressed or all the well-intentioned efforts to make modern economies more sustainable and environmentally benign will inevitably fail.

7.2 Ecological principles and economic implications

As long as we rely on market-based decisions to determine how we allocate the vast majority of our time, attention, and resources, then the commoditization forces I have described will accelerate and will overwhelm efforts to build a sustainable world. In the end, our environmental fate will be determined by how successful we are in developing policies that provide counterbalancing pressures to commoditization. Decomoditization by definition leads to less economic growth, even economic contraction. Richard Douthwaite, Herman Daly, and others have convincingly argued that we need to move beyond growth to a steady state economy.

The principles most relevant to an ecological understanding of economics are also those upon which a "sustainable" economy could be built. The remainder of this chapter will present each of these principles in general terms, the implications for ecosystem and society, and how commoditization distorts economic behavior so as to place modern human societies out of sync with these principles:

1. Economic systems are subsets of ecological systems: The principle of ecosystem primacy.
   Impllication: Ecological considerations should trump economic ones.

2. Energy is the primary natural resource: The principles of entropy and conservation.
   Impllication: That is best which wastes energy least.

3. Efficiency is enhanced by working with natural flows and processes rather than against them: The principles of appropriate technology and ecosystem thinking.
   Impllication: Technology should be designed to work with rather than against natural flows of energy and materials.

4. Contradictory goals cannot be maximized at the same time and must be balanced: The principles of homeostasis and optimality.
   Impllication: Information indicating that the human economy is out of balance with nature must be received and processed and adjustments made to optimize the sometimes conflicting goals of prosperity and ecological integrity.

5. Scale and level of organization matter: The principle of cooperative hierarchical organization.
   Impllication: Economic policy decisions should simultaneously consider effects at the level of the individual, the level of the economic system, and the level of the global ecological system.

These principles can be considered allocation principles, determining where we should allocate human attention to live more compatibly and lightly on the earth. The pressures of commoditization make it difficult if not impossible to live by these principles. Because of commoditization economic goals almost always trump ecological ones. It is the price of fuel, not the logic of entropy, that determines how readily energy will be wasted. Working with natural flows requires long, careful observation and site-based ingenuity, neither of which can be mass-marketed. Balancing goals means ending the primacy of economics, and in effect ending the power of commoditization to allocate human attention. And taking system-level considerations into account when making economic decisions means giving processes equal value as products, and this, as we have seen, is contradictory to the imperatives of commoditization. The following sections go into more detail about each of the principles and their implications as well as the barriers commoditization places in the way of achieving an economy based on these principles. This will lead to Chapter 8, which will propose policies for countering the excessive power of commoditization in order to build an economy consistent with ecological principles.

7.2.1 Economic systems are subsets of ecological systems: the principle of ecosystem primacy

Impllication: Ecological considerations should trump economic ones.

People and societies are not exempt from the laws of nature. And yet we think and behave as if these laws have no ultimate meaning to us. The sheer abundance of our species is evidence that we have managed to postpone
reckoning with the rules of ecological carrying capacity. An ecosystem's capacity to support, or carry, a given population of animal or plant is limited by available resources and the complex dynamics of ecosystem balance. Human intelligence and creativity have made it possible to utilize a far wider range of resources, and to obtain resources from above and beneath the land and oceans. Through our tremendous advances in transportation we have learned how to draw materials and energy from hinterlands far distant from our concentrated settlements, our cities. Our ingenuity makes it possible to find new sources of raw materials, to make synthetic substitutes when nature grows stingy, to continually get more out of lower quality raw materials and energy as the higher quality sources are depleted.\(^2\)

Humans not only place demands on the environment through our place at the top of the food chain, but also have created an immense economic organism with its own highly organized process of appropriating materials (or nutrients) and secreting wastes, in effect an economic metabolism. When we begin to think of the human economy as an organism whose metabolism places demands on its environment we can no longer avoid the implications of ecological limits. Probably one of the most compelling shifts of perspective was when Herman Daly placed the familiar box diagram and model of the economy inside a larger box representing the Natural World (Figure 7.1). According to Daly, the old model illustrated a belief "that the economy is an isolated system in which exchange value circulates between firms and households. Nothing enters from the environment, nothing exits to the environment.... For all practical purposes, an isolated system [that] has no environment."\(^3\)

When you look at Daly's illustration, three things stand out as obvious. First, the Natural World is the source of all materials for the economy (Daly and other ecological economists like to call this Natural Capital). Second, all the waste products of the economy are returned to Nature (in degraded condition). Third, the economy can only grow so large before it begins to fill all the available natural space. William Rees summarizes it neatly: "The material economy is an integrated, completely contained and wholly dependent growing subsystem of a non-growing ecosphere."\(^4\)

Rees of the University of British Columbia and Mathis Wackernagel at Universidad Autonoma de Xalapa in Mexico have created a tool, ecological footprint analyses, that takes the notion of carrying capacity and makes it meaningful to the human economy in a compelling way. As we noted previously, industrialized and urbanized societies have so far been able to postpone reckoning with the implications of limits to carrying capacity by being able to import resources and export wastes from distances far removed from their immediate settlements. This has been facilitated by tremendous advances in packaging and transport associated with commoditization. Rees and Wackernagel's ecological footprint analysis measures for any given population the area of land and water required to service that population's economic metabolism, i.e., produce the resources consumed and assimilate the waste produced by that population. Different analysts have used a somewhat different approach to adding up the size of the footprint depending on what variables are considered, but all show that a typical wealthy urban area in the industrialized North impacts and degrades a far greater area of forest, agricultural land, ocean, lake and wetland than the area of land they actually occupy, around 300 to over 1,000 times greater.\(^5\) The International Institute for Environment and Development, for example, studied the ecological footprint of the city of London and demonstrated that the amount of the Earth's surface required to maintain the city's economic metabolism was equivalent to the entire area of all of England.\(^6\)

Rees estimates that "with prevailing technologies and average consumption levels, the present world population exceeds global carrying capacity by up to one third."\(^7\) Since the wealthiest 20% of the world's population presently consumes 80% of the world's resources, it is difficult to avoid the conclusion that the wealthiest of the Earth's people have
already appropriated more than the available carrying capacity of the planet, leaving virtually nothing to the remaining vast majority of the Earth’s population. Others have calculated that from 40 to 50% of all the biological productivity is presently transformed or degraded by human activity. This figure shocked the world of environmental science when it was first published in *BioScience* in 1986. More recently, Peter Vitousek and colleagues have summarized global signals that the impacts of human activities have begun to significantly alter several of the Earth’s key ecological indicators, including the following:

- 20% increase in atmospheric CO₂ concentration related to human activities
- 50% of all the accessible fresh surface water is being used
- Humans are responsible for over 50% of all terrestrial nitrogen fixation
- 20% of all current plant species in Canada are invaders from elsewhere, with similar percentages likely in other parts of the world
- 20% of all bird species on Earth are now extinct, mostly as a consequence of human activities
- 60% of major marine fisheries are considered fully exploited, over-exploited or depleted

Herman Daly described the difference between what he called empty world economies and full world economies. This distinction and its social and political implications lie at the core of the challenge that ecological economics presents to mainstream economists. In a full or nearly full world, as ours apparently is, the dangers of continuing on a path of unfettered economic growth are enormous. As we approach these environmental limits to economic growth the associated costs increase. These environmental costs are largely ignored by our conventional economic accounts such as GNP. Given this, Daly suggests we may be entering, or have already entered, a period of “antieconomic growth” in which the actual costs of growth outweigh the benefits.

The only way to reduce or stabilize economic growth while maintaining a high quality of life is to increase the amount of service provided per unit of economic output. But the means to accomplish this through real conservation and increased community self-reliance, as we have seen, rely heavily on goods in the economy of care and connection, which have intrinsically low commodity potential. Furthermore, as long as market forces determine economic behavior, only that which can be priced, bought and sold matters. Free goods and common goods, no matter how important, are considered extraneous to the economy. In the logic of commoditization, the natural world is merely a storehouse of raw materials for the production of commodities. What’s left out is everything that resists commoditization which are, as we have seen, processes rather than products. These include ecosystem processes which produce and clean the air and water and build the soil, the planetary metabolism which maintains climate and ocean stability, the biogeochemical cycles of the critical minerals and nutrients of the planet, and the processes of evolutionary change and genetic diversity. No matter that nothing is producible without it, nowhere will the economy value it as long as commoditization underlies the logic and practice of valuation. The model of an economy of firms and households abstracted from their environment is an illusion that confuses much more than it informs.

The problem is not with the discipline of economics nor with economists per se. They are doing their job as it is defined for them. The questions economists ask are subject to the same selection pressure of commoditization as everything else. The questions that survive and that matter in a commoditized economy are those whose answers inform the needs of managing or functioning within that economy. The tools of the economist are put to the service of the commoditized economy — that’s who pays the bill. The tools economists have invented answer the questions about the flow and exchange of commodities. Only by political means can we assert values other than market values and so make it meaningful and rewarding to ask different questions of economists, including ecological economists.

In the logic of the argument of this book, ecosystem services are inherently services with low commodity potential: they are relational, local, and complex — the exact opposite of goods with high commodity potential, which are independent, universal, and simple. The economics of forestry can be reduced to the cultivating, harvesting, processing, allocating, distributing, and storing of forest products. The complex dynamics of forest ecosystems and their roles in producing clean air and water and providing habitat for diverse forest life will only be protected and valued when such value is recognized as specifically noneconomic in a commoditized economy and is dealt with politically as a question of the common good.

Ecosystem services must be recognized as public goods that are to be protected by institutions with the capacity to protect the commons. This requires that governance evolve so as to gain the capacity to regulate the economy for specific environmental ends. This will be the fundamental principle in the design of policies to counter the effects of commoditization discussed in more detail in Chapter 8.

7.2.2 Energy is the primary natural resource: the principles of entropy and conservation

**Implication: That is best which wastes energy least.**

There are many excellent treatments of the implications of the first and second laws of thermodynamics for ecological economics. Daly offers the following useful summary. The first law suggests that energy cannot be created or destroyed, but only changed in form. The second law, also called the entropy law, suggests that the ability of energy to do useful economic work only decreases. Taken together, we only have so much useful energy available to us, and its ability to do work is in constant decline. Therefore, it is the availability of useful (low-entropy) energy that marks the...
Fundamental limit of economic production. We currently have two very different sources of low entropy energy available to us. A solar source with an unlimited stock, but constricted flow, and a terrestrial source (fossil fuels) with a limited stock, but unconstrained flow. According to Daly, after relying on the solar source for much of human history, we have recently become addicted to the terrestrial source, and the economic growth it provides. We have switched our dependence from the unlimited to the limited source of low-entropy energy. Inevitably, we will be forced to again live within the constraint imposed by the daily flow of solar energy bathing our planet. The sooner we begin to make this transition, the smoother it will go, but it will be difficult because it flies in the face of commoditization.

There are many other excellent treatments of the second law of thermodynamics and the implications of entropy for ecological economics. Paul and Anne Ehrlich and John Holdren summarize the meaning and implications of the second law in this way:

- In any transformation of energy, some energy is degraded.
- No process is possible whose sole result is the conversion of a given quantity of heat (thermal energy) into an equal amount of useful work.
- No process is possible whose sole result is the flow of heat from a colder body to a hotter one.
- The availability of a given quantity of energy can only be used once; that is, the property of convertibility into useful work cannot be “recycled.”
- In spontaneous processes, concentrations (of anything) tend to disperse, structure tends to disappear, order becomes disorder.

Suffice it to say that the production of goods and services through the transformation of raw materials into useful products requires more energy than can be embodied in the goods and services, or reused or recycled from them. The economy of goods and services necessarily degrades the resources that it draws upon. The production of goods is always accompanied by the production of “bads.” The energy that drives the economy goes in one direction only: usable resources become more scarce and waste more abundant. Most environmental problems are traceable to this fact.

Energy is only useful to us economically if it can be channeled to do work, in other words be applied to matter in such a way as to cause physical or chemical change (or to maintain structure in the face of adventitious change). It takes work to hold things together. Structure, whether it is a human body or a chair, requires the application of work. Work must be powered by energy. Constrained by the second law of thermodynamics, energy can never be totally transformed into work; some must always be dissipated as the lowest quality energy, heat. There is, however, considerable gains that can be made in improving the efficiency in which energy is used to produce goods and services, especially in the U.S. Figure 7.2 shows the slight downward trend in the amount of energy used per U.S.


$1 of domestic production in industrialized countries. The U.S. uses more than three times the amount of energy for an equal amount of production than other developed countries.

Looking at energy we can see the difference commoditization makes. Assuming that energy efficiency makes sense, there are three possible approaches and technologies that could be developed, in descending order of commoditization potential:

- To develop and exploit ever higher quality fuels so that more of the energy embodied in fuel can be delivered at the point of production of a good or service and less is dissipated and lost (fuel efficiency).
- To reduce the amount of fuel required to produce any commodity (production efficiency).
- To organize human communities in such a way as to reduce or eliminate the need for the commodity (consumption efficiency or decommoditization).
Each approach requires the application of creative problem-solving and cooperative efforts, and each is capable of reducing the amount of energy used per unit of service, but each has not and could not receive equal amount of attention and research and development because of the differences in commoditization potential. The advances made in fuel and production efficiency have far exceeded the advances made in consumption efficiency.

That the greatest amount of effort has gone into improving fuel quality is consistent with the rule of commoditization. High-quality fuels are those that are most commercially useful, meaning they exist in concentrated forms, are relatively easy to store and transport, and can be most efficient and productive in powering work. In short, the higher the quality of a given fuel the more it contributes to overall commodity potential in an economy. Technological innovation has been directed toward making it possible to obtain and market fuels that pack a greater wallop per dollar invested. Thus the history of industrialization has been marked by transformations and improvements in fuel quality, starting with biomass fuels (mostly wood and peat and whale oil), then moving to coal once the technologies of mining and earth moving were developed, then to oil and gas once the technologies for drilling and refining were developed. Centralized electricity generation and distribution made it possible to deliver energy where and when it was needed at a considerable distance from the fuel combustion site.

Advances in production and transportation efficiency have led to reduced costs of production of commodities, making them increasingly less expensive and more developed than noncommodities. Since the invention of internal combustion engines, the history of industrial technology can be seen as the utilization of ever-increasing amounts of higher-quality fuels, at ever-increasing efficiencies to replace and/or supplement human driven work. Labor productivity increased more than a 100-fold since the industrial revolution by substituting energy for human labor. This substitution greatly enhances commoditization, because labor is far less commoditizable than energy. The labor released from production in a commoditized economy must seek out employment in commoditized service industries, which also expands commoditization there. Over time fuel replaces workers in these industries as well and another round of commoditization ensues. Without some counterbalancing commoditization force that replaces energy with human labor and creativity the mobilization of energy and materials must continue with all the accompanying environmental and social costs.

Both fuel efficiency and production efficiency is consistent with the imperatives of commoditization and therefore have been subject to considerable development in modern economies. The third form of energy efficiency, consumption efficiency, is antithetical to commoditization and in fact might be called decommoditization. The tools and skills of energy efficiency at the point of consumption belong in the hands of the final user, not the energy producer. This path to efficiency has simply not been tried to any great extent.

The story of the centralized production and distribution of electricity is a good example of how development gets distorted by commoditization. The distribution of electricity through the power grid results in considerable losses in fuel-to-work efficiency (most plants operate at around 35% efficiency, meaning they produce two units of waste heat for every one unit of electricity produced, and even more is lost in distribution and end use). This efficiency is sacrificed for improvements in centralization of power and ownership, convenience and portability, qualities characteristically favored by commoditization.

While the commoditization of energy has driven enormous technological changes, there has been little in the way of comparable advance in the technologies of end-user efficiency. Such technologies include building design and location for passive solar heating and cooling, small-scale jerry-rigged windmills and farm-scale methanol production, small scale neighborhood energy storage, as well as many reduced consumption alternatives such as neighborhood equipment and tool libraries, energy-efficiency design cooperatives, and many others. Such advances require specific technical innovations at the point of use. Such technical advances are far less commoditizable because they necessarily involve decentralized, site-specific problem-solving. The point is not that these three energy paths — fuel efficiency, production efficiency, and end-use efficiency — are mutually exclusive, but that commoditization creates a severe imbalance in allocation of research and development resources so as to overload certain aspects of energy production and use while underdeveloping key technologies that could dramatically reduce the amount of energy used to support a high quality of life.

This imbalance will only grow more important as we approach the limits to how much energy wastage the planet can tolerate. As readily available sources of high-quality fuel become more scarce, the amount of effort and energy required to obtain, process, and transport a given quantity of energy rises, thus threatening the continued advance in net energy productivity and increasing the amount of resource depletion and waste per unit of energy delivered. Energy in the forms of high-quality fuels capable of powering economic activity can only be used once. Every gallon of oil burned is permanently lost, while the supply of fossil fuel is 1 gallon diminished. Fossil fuel and other highly concentrated forms of energy resources are necessarily nonrenewable. As time goes on the highest quality and most easily extracted and processed fuels are used first. The cost in energy of producing more energy continues to rise. At some point the cost in energy expended is equal to or greater than the amount of usable energy obtained, at which point improvements in technology, or new sources or new fuels are needed to increase the energy return on investment or else economic advance must begin to slow and eventually stop. Other resources can also be evaluated for quality in terms of the amount of energy needed to transform the resource into an economically useful form. All of these analyses emphasize the absolutely critical role of energy availability and quality in all aspects of the human economy.
Chapter 2. Ecology and comminution

One result of comminution is the production of intermediate commodities. The latter are not entirely of use in producing goods and services. This is the opposite of what happens with the overproduction of non-useful goods and services. The overproduction of non-useful goods and services is a result of the production of commodities that have not been used. The production of non-useful goods and services is a result of the production of commodities that have not been used.

Any activities have provided that is used in order to meet the need for

Communion that may be provided is in the form of a commodity but not

in the form of a commodity. A new commodity is provided for the

benefit of another commodity. A new commodity is provided for the

benefit of another commodity. A new commodity is provided for the

benefit of another commodity. A new commodity is provided for the

benefit of another commodity. A new commodity is provided for the

benefit of another commodity. A new commodity is provided for the

benefit of another commodity. A new commodity is provided for the

benefit of another commodity. A new commodity is provided for the

benefit of another commodity. A new commodity is provided for the

benefit of another commodity. A new commodity is provided for the

benefit of another commodity.

Coominution

The comminution of a commodity is the production of a new commodity. The new commodity is provided for the benefit of another commodity. A new commodity is provided for the benefit of another commodity. A new commodity is provided for the benefit of another commodity. A new commodity is provided for the benefit of another commodity. A new commodity is provided for the benefit of another commodity.

In conclusion, the comminution of a commodity is the production of a new commodity. The new commodity is provided for the benefit of another commodity. A new commodity is provided for the benefit of another commodity. A new commodity is provided for the benefit of another commodity. A new commodity is provided for the benefit of another commodity. A new commodity is provided for the benefit of another commodity.

The comminution of a commodity is sometimes described as the 'ab

183

184
How dependent are we on increasing energy use to achieve and maintain prosperity? The data are clear showing a direct correlation between the two measures. But these data are misleading because of the distortions of commoditization. Prosperity in this formulation is measured in dollars of per capita GNP, so what is being measured is the total amount of goods and services moving in the economy, which of course, requires vast amounts of energy for production and distribution. The very definition of prosperity is directly tied to energy use through commoditization. If it is possible to break the hold commoditization has over our economies, which I believe it is, than the hard link between well-being and energy use can be overcome to a considerable extent. In fact, improvements in a measure of well-being per unit of per capita fuel consumption would be an excellent indicator of progress in the commoditization of an economy. It would also provide an excellent measure of the capability of a society to meet the needs of its people without damaging the natural world within which they live.

In 1985 Jose Goldemberg reported on the results of his analysis of the relationship between per capita energy consumption and the measure known as the Physical Quality of Life Index. The PQI combines three measures that often are used as a way of quantifying the level of well-being in a country: infant mortality rate, life expectancy, and literacy. According to Goldemberg, “When the PQI is plotted against per-capita energy use (commercial plus non-commercial) for a large number of countries, it is found that on average a PQI of about 90 (a value typical of industrialized countries) is reached for per-capita energy use rates of 1.0-1.2 kW, and that further increases in energy use cause only a very marginal further increases in PQI.” There was considerable variation in the data, and some countries reached a PQI of 80 with only 0.5 kW per capita, while others achieved 90 with 1 kW.

How would technology evolve in a society not distorted by commoditization forces, a society that truly took account of the reality of entropy and was interested in energy efficiency? Design would begin with two questions: first, how can the need for transportation, food production, clothing, etc. be met using the least amount of energy and materials and second, how can the natural flows and cycles associated with the landscape and climate of a particular place be utilized so that no energy is wasted fighting against or unnecessarily altering the patterns of natural flow. Under the rule of commoditization these questions are rarely even asked. The answer to the question of whether the hard link between prosperity and energy use can ever be broken, depends entirely on whether we can get ourselves out of the commoditization trap and turn our attention to making real progress in designing, engineering and living with considerably reduced flows of energy and materials.

Once we shift economic goals from growth in the production of commercial goods and services to improving quality of life, the concept of efficiency takes on dramatic new meaning. E. F. Schumacher, evoking what he called a Buddhist economics, described the flaw in the standard notion of efficiency in his classic book Small is Beautiful. The modern economist, according to Schumacher, “is used to measuring the ‘standard of living’ by the amount of annual consumption, assuming all the time that a man who consumes more is ‘better off’ than a man who consumes less. A Buddhist economist would consider this approach excessively irrational: since consumption is merely a means to human well-being, the aim should be to obtain the maximum well-being with the minimum of consumption.”

The problem with Schumacher’s and similar analyses is that they consider consumerism to be a personal, individual weakness rather than a pattern of behavior that is systematically reinforced by the structure of society through commoditization. Of course, greed and superfluous consumption can be overcome by individual decision, but it would be far easier for many more people to make that decision if society intentionally reinforced and rewarded frugal behavior and community-building activities. The policies that follow from the spiritual criticism of consumerism are the policies of personal change. Although conversion can powerfully influence behavior, the force of commoditization is systemic and powerful and largely independent of individual beliefs. That is why the economies of nominally Buddhist nations are as subject to commoditization as the most materialist, secular nations. Only through policies that address commoditization by rewarding thrift and penalizing waste can energy conservation be systematically internalized in the economy.

The technology of real energy conservation consists of goods and processes with inherently low commodity potential and commoditization has steered development away from them, including:

- An organized, well-supported infrastructure for product sharing, leasing, repair, and maintenance
- Improvements in reusability and recyclability of all goods
- Design and production in cooperation with natural flows of material and energy rather than against them
- Flexible design encouraging multiple uses for specific contexts
- Production designed for durability and simplicity of use

As we will see more fully below, these approaches suffer from an R&D famine precisely because each involves skills and practices that have inherently low commodity potential despite enormous social and environmental value.

7.2.3 Efficiency is enhanced by working with natural flows and processes rather than against them: the principles of appropriate technology and ecosystem thinking

Implication: Technology should be designed to work with rather than against natural flows of energy and materials.

The only sensible way to increase prosperity while decreasing energy and material usage is to design and produce everything with conservation and
The potential has been demonstrated by countries around the world to develop a comprehensive export program. However, the obstacles to effective export promotion are considerable. The problems of communication, coordination, and cooperation are enormous. The need for a comprehensive export strategy is immense. The potential has been demonstrated by countries around the world to develop a comprehensive export program. However, the obstacles to effective export promotion are considerable. The problems of communication, coordination, and cooperation are enormous. The need for a comprehensive export strategy is immense.
channel-shifting, which means sediments continue to build up and dangerously raise water levels in the channel. Sediment management then also becomes an energy-intensive part of flood control to replenish and/or protect downstream deltas.\textsuperscript{23}

Trying to stabilize anything dynamic requires energy, sometimes huge amounts of it. Humans routinely intervene in natural systems to make them more stable and predictable, and each intervention exacts costs in terms of energy demands and unintended consequences. We are in a tragic situation in that we must attempt to control the forces of nature for the comfort and safety of our loved ones and ourselves, but when we do so we must pay in ways that are sometimes as costly and damaging as the hazard we first attempted to avoid. The solution, if there is one, lies in a deep and detailed awareness and understanding of natural flows and processes so that instead of battling flows and stabilizing natural variability, we can accommodate and adapt ourselves and our technologies according to our best current understanding of ecosystem processes. When this is done at the relatively small scale of the individual or village, it is called "appropriate technology"; on the larger scale of a bioregion or ecosystem it is called "the ecosystem approach to resource management and economic development." The most important element for success with these approaches is a deep and detailed understanding of the properties of a given ecosystem, being able to design interventions that fit unobtrusively into that system, and moderate the impacts of human activities and the human economy on the system as a whole. The problem is, once again, that understanding systems requires a form of science that is inherently multidisciplinary, difficult, and time-consuming while resulting in knowledge that has little if any commodity potential. As a result, this science is starved for the kind of research and development it desperately needs.

Like the shifting channels of a river, most natural ecosystems are dynamic. Variability and change is a constant feature of nature. The natural history of most areas results in a patchwork rather than homogenous landscapes. Different parts of the system are subject to various cycles at different rates that affect key aspects of growth and development. Many of the features of an ecosystem exist precisely because it experiences periodic events of destruction by fire, flood, drought, disease, insect infestation, or other catastrophic events. In the long natural history of many ecosystems, the native species have evolved mechanisms to survive the periods of high stress, and many require such outbursts of creative destruction in order to reproduce and survive. When this variability — be it fire, flood, infestation, or other natural "disaster" — is reduced to accommodate the human need to impose order and stability, then the condition under which the ecosystem had evolved is fundamentally altered, and gradually the ecosystem itself is transformed and the plants and animals depending on it are lost. Human enterprise often attempts to create homogenous landscapes — be they vast fields of corn or vast stretches of highway, or placid, easy-riding rivers — out of what was once patchwork. As this happens more and more throughout the world, the diversity of nature, based as it is on the diversity and variability of ecological conditions, gradually becomes homogenized.

C. S. (Bud) Holling studied 23 examples of managed ecosystems from different parts of the world.\textsuperscript{24} In each case, the effort to suppress variability and to maximize a single target, socially beneficial variable led inexorably to decline and in some cases destruction of the managed ecosystem. Natural cycles affect the reliability of harvest: for example, periodic outbursts of spruce budworm in the eastern North American spruce/fir forests or outbreaks of fire in the western U.S. Sierra Nevada forests greatly reduce timber harvest; widely varying numbers of salmon in western U.S. streams lead to boom and bust cycles for the fishermen; varying density and species mix of rangelands lead to rising and falling beef production, and so on. Holling showed that in each of these cases resource managers attempted to stabilize natural variability. The budworm are attacked by insecticides, the fires suppressed, the grasses maintained with modern rangeland practices, the salmon stocked at varying rates to keep harvest numbers steady. What happened is that, without the variability, instead of many patches of varying ages and stages of impact or recovery, the ecosystem became more homogenous. Then, for example in the forest, when an outbreak of insects or fire did occur, which it inevitably did no matter how successful the suppression, it was far more destructive. Likewise, management practices turned rangelands into beds of highly productive but drought-sensitive grasses. Under drought conditions the range turned into a virtual desert with a few shrubs.

It is certainly rational for producers to attempt to minimize sudden fluctuations in yield or output. Predictable, preferably steady supplies of output are one of the defining characteristics of a successful commodity. Harvesting natural resources in a highly commoditized economy requires massive investment in equipment and labor. Predictable yields are needed to satisfy the demands of the investors. Without ecologically based policies to counteract the effects of commoditization, the logic of exploitation is inevitable and inevitably destructive. For the rational market-driven actor, there are really only two options: sustainable yield, which implies suppressing the variability of the commodity being produced, or worse, massive onetime harvesting as in clear-cutting rainforests and placing the one-time income into other investments with greater or more steady economic yields. The logic of commodity production is powerful. More ecologically based resource management alternatives inevitably have lower commodity potential because they require less capital and more labor; they require intense personal knowledge of the underlying ecosystem and rely on the existence of a mixed local economy where local timber suppliers are in active social relationship with timber consumers. For ecosystem management to be successful, a balance must be struck between commodity production and conservation of noncommodity values. That requires a coordinated system of economic and social policies to counter commoditization pressures and promote ecologically informed, ecosystem-based management.
Chapter 2: Ecology and Communications

The natural world, particularly the ecosystem, is the foundation of all life. Every organism, from the smallest microbe to the largest animal, interacts with its environment through various processes. These processes include photosynthesis, respiration, and decomposition, among others. Understanding these interactions is crucial for managing ecosystems effectively.

In this chapter, we explore the fundamental principles of ecology and communication. We discuss how ecosystems work and how they are interconnected. We also examine the role of communication in ecological processes, such as seed dispersal, pollination, and predator-prey relationships.

By understanding these principles, we can better appreciate the complexity of nature and take steps to protect and conserve our natural resources.

Key Concepts:
- Ecosystems
- Energy flow
- Trophic levels
- Biogeochemical cycles
- Communication in ecosystems

We conclude this chapter by emphasizing the importance of preserving our natural heritage and the need for continued scientific research and education to inform our conservation efforts.

192

Preface...
environment and connection with the natural world can then be appealed to for the marketing of commoditized eco-goods and services, such as eco-tourism and wilderness gear. Although a small but significant lobbying voice for environmental protection can be organized and politicized around these feelings, the majority of society will continue in its profligate and carefree pattern without real economic changes that address the problem of commoditization.

The prerequisite for living out an environmental ethic is awareness. One cannot care about what one does not know, and certainly one cannot protect what one does not understand. We cannot follow the ecological principle of designing with nature if we do not understand nature's designs. As the need for environmental awareness grows, the reality, driven by commoditization of the land and agriculture, is that fewer and fewer people are actively engaged in working on the land and developing an intense consciousness of nature. It is not that people are not spending more and more time in nature as spectators or in various forms of outdoor recreation, but such is a very different experience from slow and careful work of cultivation and husbandry, requiring attention and observation skills of another level than sightseeing. While the intellectual content of environmental ethics has grown with a great number of publications and courses dedicated to articulating and further elaborating the arguments for such ethics, the practical relevance of its ethical principles remains about as marginal as it was when Aldo Leopold wrote his famous prescription.30 The irony of the evolution of environmental ethics is that as its intellectual content has grown, its existential content has probably declined. Our ability to act on that ethic in a meaningful way has been reduced correspondingly.

The child in third grade who learns, as Leopold hoped she would, ecological principles, can think of no real application of that knowledge other than to use two sides of a sheet of paper to spare a tree. Meanwhile, her world is a cacophony of manufactured materials, much of it produced in ecosystems thousands of miles away, over which she has no control. Leopold wrote that, "perhaps the most serious obstacle impeding the evolution of a land ethic is the fact that our educational and economic system is headed away from, rather than toward, an intense consciousness of land." Activities that foster an intense consciousness of land — working soil, shaping materials, gathering food — remain segregated in arts and crafts and field trips to zoos and nature centers. Despite the best intentions of environmental educators, the environment remains, in this context, another form of entertainment.

Commoditization creates an economic selection pressure that maximizes the attributes of commodities as described throughout this book. Nearly every analysis of how to reduce our economy's negative environmental impacts concludes with some version of recommending that we redesign our economy and its industrial and commercial tools in ways that mimic the cycles and flows of nature. But the very attributes we want to mimic in nature are incompatible in many ways with the attributes that make something a successful commodity. As commoditization operates over time, therefore, it becomes increasingly difficult to follow the guidance of the natural world even as we learn more and more about the ways nature works and the importance of following its dictates.

7.2.4 Contradictory goals cannot be maximized at the same time and must be balanced: The principles of homeostasis and optimality

Implication: Information indicating that the human economy is out of balance with nature must be received and processed and adjustments made to optimize the sometimes conflicting goals of prosperity and ecological integrity.

Life is full of contradictions that can never be fully reconciled; they can only be balanced while we do our best to navigate some optimal middle ground, like Goldilocks choosing not too hot and not too cold, not too soft and not too hard, not too fast and not too slow. Every action, every creature, and every life operates best under optimal conditions that represent a balance between countless variables in complex patterns of relationships with each other. This is also true of nonliving matter as well. Each structure represents a temporary point of stability between several chemical, physical, and biological forces acting upon matter in often conflicting ways. Within these points of balance life evolves in wildly diverse ways that take advantage of flows of energy and nutrients temporarily made reliable and semipredictable by the improbable structure. Structure is always a highly improbable balance temporarily achieved between countering forces: If any one of these forces happens to be maximized to the loss of the others, then the structure is destroyed. Although no single force is ever maximized in any structure or life or pattern of any kind, each is being optimized in relation to each other. This optimum is always temporary, because everything is changing over time and as each variable changes all the others react. The miracle of life is how much stability actually exists over time. The way life maintains stability is what we call homeostasis, the ability or tendency of an organism to maintain internal equilibrium of temperature, fluid content, and countless other variables by the regulation of its own internal physiological processes and by automatically adjusting to changes that occur in the external environment. The most important aspects of successful homeostasis are:

- The capacity to continuously gather, receive, and evaluate information coming in from the environment.
- The ability to respond appropriately to the information by adjusting internal conditions in ways that maintain favorable balance.
- An external environment governed by its own homeostatic mechanisms that maintain conditions roughly within the range of extremes of the particular species' evolutionary experience.

Homeostatic mechanisms exist at the level of the cell, the organ, and the organism: Organisms interact in complex relationships with each other and
energy-efficient human welfare optimization

In order to maximize commodity production, the focus is on improving the efficiency of the production process. This includes reducing waste and improving the use of resources. The goal is to produce more with less input. This can be achieved through better management of resources, improved technology, and increased efficiency in production processes.

The need for such improvements is driven by the following factors: the depletion of natural resources, the need for sustainability, and the increasing demand for goods and services. By improving the efficiency of production, we can reduce the impact on the environment and ensure a more sustainable future.

Incorporating these considerations into our decision-making processes will help us achieve a more sustainable and efficient economy. This will require changes in both the production and consumption patterns. It will also require a shift in mindset towards valuing resources and the environment.

In summary, improving the efficiency of commodity production is crucial for achieving a sustainable and equitable future. By making such improvements, we can ensure that our resources are used wisely and that our actions do not harm the environment.

Chapter 1: Energy and Commodities

1. Physical Goods

197
7.3 Conclusion

The field of ecology has taken great strides in demonstrating its relevance to economics, so much so that economists ignore the conceptual frameworks and warnings of ecologists only at great peril to their profession and the world. Indeed, ecology is more even than an academic counterpart to economics, but should better be understood as a metadiscipline without which economic analysis is fundamentally incomplete and inadequate to make long-term projections of economic development. As the analysis in this chapter has sought to show, we cannot understand our present economic condition or make rationally justifiable decisions about our economic future without taking into consideration ecological principles that simultaneously make opportunities available to us and constrain our options. If we intelligently apply ecological principles to our economic analysis and decision making, than we will have many more opportunities than constraints. If we wait to analyze our condition in ecological-economic terms until ecosystems are stressed beyond repair, then surely we will be faced with overwhelming constraints and few opportunities.

The five ecological principles described in this chapter do not exhaust the economically relevant insights of ecology. They do begin to demonstrate just how far askew commoditization has taken the human economy. They also hint at the direction we need to take in order to bring the human enterprise in line with what we know about the way the world works. The following chapter discusses a general program of policies that might just do the job.

Notes


chapter eight

Toward a coordinated decommoditization strategy

Contents

8.1 Introduction ........................................................................................................ 204
8.2 The policy wedges ............................................................................................ 206
8.3 The role of participatory democracy ............................................................... 208
8.4 The powers of government ............................................................................... 211
8.5 Steps in a decommoditization strategy ............................................................ 212
  8.5.1 Getting private money out of politics ......................................................... 212
  8.5.2 Supporting LCP public services .................................................................. 213
8.6 Government reforms for decommoditization ................................................ 214
  8.6.1 Protecting human rights ............................................................................. 214
  8.6.2 Defense and public safety ............................................................................ 215
  8.6.3 Government infrastructure for the provision of public goods ................. 215
  8.6.4 Provision of public goods and services ...................................................... 216
  8.6.5 Government regulations for environmental protection, commerce, trade, and land use ............................................................................. 217
  8.6.5.1 Trade ...................................................................................................... 220
  8.6.5.2 Environmental protection ..................................................................... 223
  8.6.5.3 Corporate influence ................................................................................ 224
  8.6.5.4 Economic development and modernization .......................................... 225
8.6.6 Taxation, public spending, and the supply of money .................................. 226
  8.6.6.1 Tax policies ............................................................................................ 226
  8.6.6.2 Expenditure policies — subsidies and government purchases ............. 229
8.7 Credit policies .................................................................................................. 231
8.8 Building a movement ....................................................................................... 232
Introduction

Chapter Eight: Toward a Commodified De-commodification Strategy
feeling of being overwhelmed by our many, seemingly disparate problems. Because commoditization distorts economic and social relations in so many areas, addressing its rule over the economy as a whole would have a broad, positive impact on all aspects of economic and social relations.

8.2 The policy wedges

This final chapter is about the policies that are needed to decommoditize the economy, and the social movement required to create the conditions in which these policies can be adopted and implemented. The proposed policies taken together constitute a coherent program for building an economy that is responsive to environmental and social needs rather than simply the interests of those who benefit most from the commoditized economy.

Commoditization as a force shaping economic and social relations is a natural outcome of the release of creative energy for personal wealth production. As a result, there is continuous improvement in the quality and availability of commercial goods and services, which greatly enhances the quality of human life wherever it is free to operate. The point is not to destroy the incentives for commercialization and marketing of goods and services, the point is to create enough countervailing pressure to end the domination of commoditization over all spheres of social development. What is needed is an equivalent release of creative energy in the direction of building and conserving natural and social wealth.

"Ecological footprint" and other analyses show a fairly wide variation in the amount of environmental impact per unit of population, even among industrialized countries. Similarly, the Genuine Progress Indicator shows that in the industrialized countries the expected correlation between increasing GDP and improved quality of life has broken down since at least the 1970s (see Figure 2.3). Much of the consumption in affluent societies is above that needed for a secure and healthy life. These data suggest that the hard link between economic growth and public welfare is exaggerated and that there is considerable room to develop the noncommodity sectors of society.

To accomplish this development two things are necessary but perhaps not sufficient: first the capacity and willingness of society to invest in public noncommodity services that improve the quality of family and community life without necessarily increasing production, and second, the responsiveness of government to needs other than those of commercial and industrial interests. In other words strong, effective, and broadly representative governance.

The challenge is daunting to say the least. As we have seen, the economic bias for commodities is structural and systemic. That means that environmental and social policies intended to stimulate sustainable development, no matter how well-intentioned, usually fail to counter the underlying pressures of commoditization. Such efforts are overwhelmed by unsustainable economic forces. Yet by understanding the systemic nature of the bias for commodities, we can design a suite of policy initiatives which produce countervailing economic pressures to minimize the bias. If decommoditization policies reinforce each other in a systemic way then they can become part of the economic structure within which producers and consumers make rational economic decisions. Such initiatives should have the effect of dramatically redirecting research, development, and investment toward the common good in a systemic, self-reinforcing way.

What we need are policies that improve quality of life without necessarily increasing the amount of energy and material throughput in the economy. There are three approaches, or policy wedges, that combined can reduce energy and material consumption while maintaining a high quality of life (Figure 8.1). These include:

- **Improved efficiency** — getting more output per unit of input
- **Conservation** — conserving energy and materials whenever possible
- **Consumption-reduction strategies** — encouraging actions and behaviors that lead to voluntary simplicity and lower levels of individual consumption.

![Figure 8.1](image1.png) In the present scenario (i), increasing consumption (C) is tightly related to energy and material throughput (E + M) in the economy. (ii) In order to decrease throughput, economic activities must be made more energy- and material-efficient. Policies that stimulate improved efficiency alone can be expected to lead to lower prices and increased consumption, sometimes leading to increased throughput. (iii) Policies that encourage energy conservation (Pc), when combined with improved efficiency (PcPc), can begin to reduce consumption and E + M throughput. (iv) Further policies that encourage cooperation sharing and community provisioning, leasing, and extended producer responsibility and other use reduction strategies (Pc) can be combined with efficiency and conservation to significantly reduce energy and material throughput while maintaining high quality of life.
Chapter Eight: Toward a coordinated democratization strategy

The role of participatory democracy

Governments and their economic and social functions must be redefined in light of the new power and credibility of the commodities market. The scope of economic and socio-political functions is expanding, and decisions are no longer within the authority of the government. As "the economy without the authority of the government," commodities are commodities known as "the economy without the authority of the government." The role of participatory democracy.

8.3 The role of participatory democracy

The role of participatory democracy is to ensure that decision-making processes are transparent and involve all stakeholders. This includes ensuring that decisions are made by input from a wide range of interests, including those that are often marginalized or excluded from traditional decision-making processes. Participatory democracy also requires that decisions are made in a way that reflects the diversity of views and perspectives within society. This can be achieved through mechanisms such as public consultations, community meetings, and democratic voting processes. The role of participatory democracy is to ensure that the decisions made are fair, equitable, and reflect the needs and aspirations of all members of society.
Privileged Goods

innovation and creativity and destroy local cultural diversity. Free market societies, while usually espousing the value of creativity and diversity, distort them by channeling them overwhelmingly toward commercial ends. What has often been presented as the only two political options — free-market capitalism or state-controlled socialism — each distort and limit human freedom and creativity and threaten the Earth.

If we are going to imagine and innovate our way out of the environmental crises of our times, we must be able to think beyond the confines of the false choices that are presented between two extremes. These dichotomies limit our thinking by presenting options that are equally unattractive. The choice is not between the tyranny of the market or tyranny of the state. Instead, there is an array of options for how humans can organize themselves and act collectively on behalf of the common good. The more we understand about the physical environment and the unintended consequences of our choices, the better chance we have of organizing our governments and our economies to minimize the negative effects of human activities. The choice, for example, is not between controlling nature or living passively as a victim of natural forces. Instead, there are countless ways to find a balance.

We need effective democratic government that can intervene to deliberately and thoughtfully adjust economic system dynamics for the common good. One of the biggest obstacles is the way government itself becomes distorted by commoditization. As a result we are in a bind. We need government to counteract the commoditization effects of free markets, but government itself is affected by commoditization in ways that limit its effectiveness for acting on behalf of the public good. This is why the first step in addressing the environmental crisis must be the emergence of a powerful social movement able to extract government from its capture by the forces of economic power.

Such a movement could initiate the building blocks of new international, regional and subnational institutions with the capacity to effectively carry out policies at the local, national, regional, and global scales, and to encourage the expansion of civil society at all these levels.

The failure of modern societies to clearly identify the distorting effect of commoditization is a result part of the institutional and ideological bias in which freedom is associated more closely with choice in the market than with self-government. Yet self-government is a primary democratic value, and economics should be subordinate to it. As important as markets are, it is time to rediscover the balance between market forces and politics wherein political judgments can be made that reflect a concern with the common good. The common good is first and foremost to be found in the common — those aspects of life that are much less commoditizable because they involve substantive relationships among individuals and between individuals and their environment.

With the globalization of economic competition now taking place, the pressure to innovate has increased even further. It is to be expected that social uncertainty arising from insecure employment and rapid technological change coupled with steady global economic growth will further increase. Given the close association between economic growth, commoditization and ecological deterioration, the daunting challenge of reforming growth to minimize the negative effects on ecosystems must be faced right away.

8.4 The powers of government

Governments have six essential powers; they:

1. Create and support stable infrastructure for the provision of public goods and services, including the basic legal and organizational infrastructure of government itself.
2. Provide public goods and services.
3. Regulate activities, including commerce, that affect public welfare.
4. Collect taxes and expend public funds.
5. Protect human rights.
6. Provide for collective defense, public safety, and order.

These governmental powers, if used effectively as part of a coordinated commoditization strategy, could counteract the effects of commoditization. But these powers themselves are subject to the forces of commoditization in the following ways:

1. Government infrastructure — There are two main aspects of the commoditization of public infrastructure:
   - In any given sector, infrastructure investments flow toward the most commoditizable options so that, for example, investments in building and maintaining roads and highways are far greater than investments in public transportation.
   - Elections are treated as a market exchange where candidates are sold to a public much like any other mass product.

2. Public services —
   - Whenever it is possible to profit from the provision of services, these services are commoditized and moved from the public to the private sector. As a result, private industry siphons off the simplest and most commoditizable tasks, leaving government with the most difficult and costly ones. As a result, governments always appear to be less efficient in delivering services than private industry.
The potential impact of the application of strategic communication tools and techniques on the success of the government's policy objectives cannot be overstated. These tools allow for the effective dissemination of information and the creation of a favorable public perception towards the government's initiatives. However, the success of these tools hinges on several factors, including public awareness, media coverage, and the effectiveness of the communication strategy. As such, the government must ensure that these tools are used in a coordinated and strategic manner to achieve its objectives.
spiritually motivated social action can be seen in the movement towards "voluntary simplicity" or what might be called the decommoditization of everyday life. Spiritual values have been the foundation for many of the most important social movements of our time.

8.6 Government reforms for decommoditization

How should the six essential purposes of government change in order to offset the effects of commoditization? We will consider each one separately, although the functions clearly overlap. Commoditization's power as a selection process operates because of the natural tendency for investment of capital and other resources to flow toward that which can be most readily commercialized. Over time the imbalance favoring commodities grows. Government's power to build, regulate, tax, and spend can provide powerful counterbalance by shifting investment and other resources toward the underdeveloped noncommoditizable sectors of the economy, the economy of caring, the capacity for local self-reliance, the protection of ecosystem integrity, and the provision of the full range of noncommodity goods and services that cannot be expected to be provided by private industry.

Such a coordinated decommoditization strategy requires first and foremost a revisioning and revitalization of governance as the manifestation and agency of the collective interest in promoting the common good. An understanding of commoditization provides a common conceptual framework with which to design and implement public policies. The intent of decommoditization policies should always be to accomplish what private industry cannot accomplish and to regulate industries and markets to minimize the effects of commoditization on the environment and society. Thus, infrastructure development should focus on building up what private investments tend to ignore and commoditization tends to undermine. Once this becomes clear, the role of government grows more apparent, particularly in supporting low commodity potential research and development and stimulating investments in the economy of caring and relationship, and in dramatic improvements in the efficiency with which we use energy and materials to meet basic needs and build prosperous communities. These should be the three pillars of governance and public service: knowledge, care, and thrift. These should be the themes of all our reforms. First, some thoughts about how the government role in human rights and public safety would be affected by a decommoditization strategy.

8.6.1 Protecting human rights

The concept of what constitutes a human right would include the basic economic rights referred to in the International Covenant on Economic, Social and Cultural Rights. It would also include rights to a healthy environment and the rights of local communities and indigenous peoples to control local commons, biological resources, and cultural destiny.

8.6.2 Defense and public safety

More effort would go into the low commodity potential services of community and neighborhood watch programs, family support, crime and violence prevention programs, conflict resolution, and others.

Although government's role in providing for public safety and protecting human rights is extremely important, the remainder of this chapter will focus mostly on the infrastructure, regulation, and taxing and spending functions of government.

8.6.3 Government infrastructure for the provision of public goods

Investments in infrastructure would be heavily weighted toward energy and material conservation, local community and bioregional support structures, environmental protection, and the institutions of caring and connection.

A key component of any sustainable development strategy is industrial policy designed to move industry in the direction of dematerialization, or the use and consumption of significantly less material and energy per unit of production. Many have argued for such a new industrial policy, some calling it a new industrial revolution. Although the importance of inventing new ways to get more out of less materials and energy cannot be overemphasized, if it is done without attacking the structural problem of commoditization it will not succeed. Unless the goal is shifted from improved efficiency (the most product with the least input) to improved sufficiency (the most satisfaction from the least product), then dematerialization can never become decommoditization. Nevertheless, a new industrial policy is a critical aspect of the needed economic reforms. The components of such an industrial policy would be as follows:

- A major public investment in research and development of clean technology and the substitution of safe, abundant, renewable resources for hazardous and nonrenewable resources in all areas, especially in the energy industry.
- Major tax incentives and subsidies toward the development of zero emissions and integrated closed loop processes.
- Requirements that all products be designed for easy disassembly and reuse, including buildings.
- Strict energy efficiency requirements for all consumer end-products.
- Adjustments to current Best Available Technology rules to specifically promote the use of zero emissions technologies.
- Major new investments in rail service and other new low-impact transportation.
- Conversion of durable goods into services by shifting from retailing to leasing services for most major and even minor consumer goods and appliances.
would more effectively reduce the competition good fit to the economy.

Chapter Eight: Toward a coordinated accommodation strategy

The modern market is marked by a growing number of competitors offering similar products and services. The need for differentiation and innovation is paramount in this environment. Companies must continuously improve their offerings to stay ahead of the curve. This requires investment in research and development, as well as a focus on customer satisfaction and market feedback. Companies must also adapt to changes in technology and consumer preferences.

8.6.5 Government regulation for environmental protection

In recent years, there has been a growing emphasis on environmental issues. Governments have implemented regulations and policies to protect the environment and promote sustainable practices. These regulations range from emission standards for industries to conservation efforts for natural resources. The goal is to ensure a healthy and balanced environment for future generations.

8.6.4 Provision of public goods and services

Public goods, such as education, healthcare, and infrastructure, are essential for the well-being of society. Governments have a responsibility to provide these goods and services to ensure the basic needs of their citizens are met. This includes not only the provision of goods and services but also the regulation of markets to ensure fair competition and protect the interests of consumers.

The successful development of these goods and services depends on the cooperation and coordination of various stakeholders, including governments, businesses, and communities. It requires a commitment to long-term planning and a focus on the needs of the population. The provision of public goods and services is a complex process that involves balancing competing interests and making difficult trade-offs.
The question then is not whether to regulate certain industries but how to regulate them. Commodity operations to favor certain kinds of regulation, those that resist commodification the least. First, regulations are deliberately designed to have the least negative impact on economic growth and in the case of regulations are designed specifically to encourage economic growth. As we have seen, encouraging economic growth in a commoditized economy is necessarily intensified by forces of commodification. Furthermore, government, as much as consumers, is subject to the preference for commodities when selecting solutions to any particular need. It is simpler to buy something than to do something, especially when your are surrounded by people eager to sell.

It is also simpler to regulate in a piecemeal fashion rather than to have a coordinated strategy. This is as true for environmental regulation as any other kind. Air quality statutes are passed in response to air pollution, water quality statutes in response to water pollution, and so forth. There is no overall, aggregated measure of environmental quality, and there is no holistic policy of reducing effects of human activity on the biosphere. The establishment of the regulatory regime in most industrialized nations in the 1970s took this approach and subsequently created a huge pollution control industry. Industries took the easiest, most commoditized solution by purchasing add-on commodities in the form of pollution control devices that brought them into compliance with discharge regulations. Pollution control technologies do indeed reduce the emissions of regulated pollutants into air and water, but environmental quality may still suffer long-term damage because filters and other emission control technologies merely move pollutants from one medium to another (e.g., from the air to the soil when filters are disposed of), and because the production, maintenance, and disposal of pollution control devices often lead to increases in total energy and material use. Meanwhile the devices allow polluting industries to continue to expand while reducing the worst of the localized and visible pollution in the wealthy industrialized world. Pollution has also been exported, as the dirtiest industries are relocated to the poor, newly industrializing parts of the world.

One alternative to piecemeal pollution control would be a coordinated strategy of waste reduction and pollution prevention for each major economic sector aimed at decreasing the total amount of energy, raw materials, and pollution produced in each sector and the economy as a whole. A regulatory regime to accomplish this would necessarily be quite demanding, requiring polluters to redesign production, distribution, and waste disposal systems while at the same time using the government's powers to tax and spend to discourage consumption of products with high material and energy costs.

Environmental regulations will be much more effective when accompanied by regulatory reforms in other areas that encourage the commodification of the economy. Most estimates conclude that in order to reduce the human impact on the environment while continuing to grow economically, we must become four to ten times more productive in our use of physical materials and fuels. Although this may be a difficult technical challenge, it is instructive to note that modern industrial technology and commoditization have increased the productivity of labor by more than 100-fold during the period of industrialization. Each hour of human labor can produce more than 100 times more economic goods and services than the same hour could 100 years ago. Decommodification policies that shift the incentives for investments toward materials and energy productivity can stimulate similar productivity gains for these inputs.

Improvements in energy and materials efficiency alone will not, however, lead to general decommodification. Every savings in energy and fuels represents cash not spent. If that cash is simply shifted to purchasing other commodities, then no matter how energy- and materials-efficient our economy becomes, overall use and consumption of energy and materials is likely to continue to rise. This is clearly demonstrated in the economic modeling done by Faye Duchin, who demonstrated that, given current projections in economic and population growth, even assuming a scenario in which both the industrialized world and the less industrialized poor nations adopt the most clean and efficient technologies available today and conserve energy and recycle raw materials at the levels achieved by only a few countries at present, "despite substantial savings in energy and materials that are attributable to the new technologies... the pollutants that are tracked in the model all continue to grow, rather than fall, over the period studied."

Policies directed to promoting efficiency improvements must be accompanied, therefore, by decommodification policies that actually slow economic growth while increasing public welfare. This can only occur if the money generated by reduced costs goes in two directions: (1) toward increasing capital accumulation through an increased savings rate, and (2) the investment of that capital toward improving public welfare through investments in supporting local self-reliance, building the infrastructure of caring and connection, and protecting ecological integrity. Success will require reforms in the rules governing corporate practice, public and private credit and investment, and the allocation of government revenues. Obviously this cannot be accomplished by current environmental regulatory agencies alone. The only way for a green economy to emerge is for ecological principles and the reforms they imply to permeate all levels of government and policy, including governance institutions at the global and ecosystem levels which do not presently exist.

Land use decisions have enormous environmental consequences. The problems associated with attempts to steer land-use toward more sustainable, environmentally friendly patterns raises many of the same sorts of issues of government regulatory capacity. Most land use regulations, zoning, and land development policies have some decommodifying effect on property — one's property rights are necessarily constrained by them to some extent. This is particularly true in cases where communities attempt to regulate and control suburban growth or constrain and direct urban growth to patterns meant to best serve goals such as transportation efficiency or
World came from private sources; by 1996 this share had risen to 86%. These types of funds, particularly under the conditions of commoditized capital flows (meaning mobile and speculative), are highly vulnerable to mood swings and sudden changes of fortune. This was demonstrated in 1997, with the onset of the global economic crisis in Asia, when the trend reversed and private capital flows to emerging markets fell by around 20%.17

The volatility of capital flows in the late 1990s initiated a period of severe economic uncertainty for most developing countries. This economic uncertainty strictly limits the capacity of government to protect natural resources and the environment. Globalization of economic development and investment makes it nearly impossible for weak governments and underdeveloped economies to act alone to protect their economies from capital flight and currency speculation. The economic strain places tremendous stress on national governments to initiate or continue rapid, unsustainable development by accelerating the exploitation of natural resources as the only hope of offering investors the potential for quick fortunes, and thereby attracting foreign capital investment. The resulting impact on the environment has been devastating. Since no individual government is now capable of effectively controlling capital movements, the only hope is through internationally negotiated capital controls associated with international trade agreements.

Investment in less developed and less commoditized countries takes three forms: (1) foreign direct investment, in which foreign capital is invested in the productive capacity of a country — often this is done in joint partnerships between the foreign investor and a domestic partner; (2) portfolio investments, in which foreign investors buy stocks and bonds issued by domestic markets; and (3) loans from foreign commercial banks, either to local or foreign investors for use in the domestic economy. Each of these has grown much more mobile and volatile at the same time that the availability of official, government-to-government economic assistance has declined. The result is the dwarfing of publicly financed international development assistance by private investment and the resulting intensification of commoditization. It might be possible to counterbalance this by

- Establishing international controls over capital mobility through international agreements.
- Levying an international tax on capital movements and currency exchange to provide resources for the creation of international institutions for market regulation, environmental protection, and labor and other social standards.18
- Requiring that all trade agreements be accompanied by civil charters covering environmental protection, workers' rights and safety, food safety, human rights, and other common goods neglected because of commoditization.
- Supporting local and regional self-reliance and reduced dependence on the global economy.

Reforming trade agreements to control capital movements, and applying tariffs and duties which encourage optimum local self-sufficiency in food and energy and the protection of natural resources and the environment.

8.6.5.2 Environmental protection

The body of laws and regulations that presently govern the activities of business, industry, local communities, nonprofit organizations, and individuals has over time been distorted in the direction of commoditization. New rules and regulations are needed to counteract this distortion and to create the conditions under which the natural world is protected without sacrificing prosperity. This is the heart of the challenge of sustainable development. In general, these regulations would increase the role of government in economic regulation and would increase employment in conservation and preservation. They would force producers to design products that are energy and materials efficient. Such initiatives and reforms might include a shift in the principle underlying environmental protection regulations from pollution control and reduction to pollution prevention and elimination. This will require

- Gradually declining allocation of total maximum wasteloads in a given watershed or airshed, with concomitant public capacity to monitor releases and require necessary reductions.
- Requirement that all major manufacturers develop and implement both site-based and industry-wide energy and material reduction plans.
- Redesign of production processes so that all waste, including waste energy, is captured and used.
- Requirements for manufacturers to take back their products for reuse or recycling, in effect requiring expansion of leasing arrangements for most major purchases.
- Institutions and incentives for the exchanges of discharge rights and waste materials operating under rationing systems, with strict caps on overall pollution.
- A permitting system for all new synthetic chemicals and materials with permits allowed only after clear demonstration of absence of environmental harm.
- Government capacity to regulate by classes of compounds or types of processes that are reasonably anticipated to have negative environmental consequences.
- Regulatory structure guided by sustainable development principles, using cost/benefit analyses that include the nonmarket value of social and environmental goods and services.
- Meaningful environmental assessments incorporated into the regular functioning of all government agencies including the permitting functions associated with all major private investments. These will be based on broadly defined costs and benefits, including nonmarket ones.
Chapter Eight: Reform a Domestic Decoupling Strategy

8.6 Economic development and modernization

Economic development and modernization:

- Economic development and modernization refers to the process of transforming the economy and society to achieve modernization.
- This involves improving the efficiency and competitiveness of the economy, promoting the development of new industries and technologies, and improving the living standards of the people.
- Modernization also includes the upgrading of infrastructure, the improvement of education and healthcare systems, and the promotion of social stability and harmony.

8.6.3 Comparative analysis

Phillis Good

- The need to coordinate the economic development of China's regions
- The current situation of China's economic development is uneven, with significant regional disparities.
- The need to implement a national strategy of coordinated development
- This strategy aims to balance the economic development of different regions, promote regional cooperation, and reduce regional disparities.
- The strategy includes measures such as infrastructure development, resource allocation, and environmental protection.
- The implementation of the coordinated development strategy is crucial for achieving balanced economic development and promoting social harmony.

In conclusion, the coordinated development strategy is an essential approach to promoting economic development and achieving long-term sustainable growth in China.
ever. The currently most powerful institutions for global economic development— the World Bank, International Monetary Fund, and the World Trade Organization—are all committed to a strategy of increased commoditization. The policy formulas and so-called structural adjustments that developing countries are being pressured to adopt are for the most part the exact opposite of a decommoditization strategy. Governments are pressured to open their doors to free movement of capital, to lower domestic taxes, and greatly reduce public spending on welfare and social services. The objective is to shift money and resources to the most commoditized sectors of the economy in order to stimulate economic growth in terms of commercial goods and services. This is done partly to raise the funds needed to pay debts to the world’s major lenders, further concentrating wealth and power in the hands of the wealthy and further stimulating commoditization in the classic positive feedback process.

The entire institutional structure of global economic development must be reformed in order to gain some control over this runaway commoditization feedback mechanism. An international sustainable development infrastructure is required beginning with a commitment from the major international development agencies to support a network of well-funded, bioregional research and economic development centers specifically devoted to local sustainability, the development of diverse, self-reliant economies based on local ecosystem characteristics, local renewable resources, local crafts industries, urban-rural economic linkages such as community-supported agriculture and urban gardening, renewable energy and public transportation. Such an infrastructure could be funded by taxes and fees on currency exchanges and other international trade as well as on global taxes on carbon emissions and the trade of carbon emission rights.

8.6.6 Taxation, public spending, and the supply of money

Government's ability to raise revenues and to spend those revenues gives government the capacity to shape the economy. Because taxes can shift the allocation of resources in an economy, a government's authority to tax and spend may be the most important power in terms of reinforcing or countering commoditization. Taxes and public spending also have an effect on the availability and cost of private credit. Credit plays a major role in commoditization, especially in its acceleration in advanced industrialized societies. These issues are discussed below.

8.6.6.1 Tax policies

Tax policy should be used to counteract the effects of commoditization. The aim of a strategy to correct the distortions of commoditization would be to decrease the effective price of labor and increase the price of raw materials and energy by gradually shifting taxes away from wages and income and onto materials and energy. Tax policy may be the most important and efficient tool for counterbalancing commoditization, because it directly influences prices and makes it possible to shift money from the most commoditized sectors to the least. Such taxes could create incentives for producers to reduce the material and energy content of their products, thereby reducing the environmental impacts of production. Taxes could also be targeted to the key elements of commoditization such as packaging, advertising, international trade, capital gains, and currency exchange. The revenues collected from such taxes could be used for targeted public investments in further production efficiencies and community-building.

Raising the price of energy by imposing energy taxes would probably be the most efficient and effective means of decommoditization. It could accomplish much environmental good by itself and be relatively simple to administer if not to legislate. Energy taxes could be made more sophisticated and be targeted for particular environmental purposes, such as a tax on carbon content to reduce the emissions of CO2. Such taxes would encourage the shift from fuels with the most carbon, coal, toward natural gas and ultimately to carbon-free hydrogen fuel.

Shifting the tax burden from labor (in the form of income and payroll taxes) to energy and materials (in the form of raw material and fuel taxes) would lower the effective cost of labor in comparison to energy. Human labor is the least commoditizable of the factors of production, and commoditization always moves in the direction of increasing labor productivity through substitution of energy and energy-intensive capital for labor. Raising the price of energy through fuel taxes and simultaneously reducing the price of labor through lowered income and payroll taxes shifts the potential gains from productivity improvements from labor to energy and materials, thereby moderating one of the most potent stimuli for commoditization. With labor costs declining in relation to energy and raw materials, it begins to make sense to repair rather than replace consumer goods. Retrofitting and insulating homes becomes less expensive than paying for fuel for heat. Labor-intensive organic farming practices begin to compete with energy-intensive, high-input agriculture. Locally hand-made crafts begin to compete with imported Barbie dolls.

In addition to taxing materials and energy, it may be possible to deliberately tax pollution. Taxes could be levied on air, water, and soil pollution of all kinds, with the most toxic and damaging pollutants being taxed the most. Taxing pollution output is another way of internalizing costs of production that are usually externalized to society. Such environmental taxes are already in use in countries around the world, and their popularity is expected to rise as the costs of pollution are better understood.

In the end it makes sense (as it has for such “sin” taxes as the levy on alcohol, tobacco, and gambling) to tax things we would like to reduce so that the effect of higher prices can have social benefits. When taxes are used in this way, they are sometimes referred to as “regulatory” taxes. Regulatory taxes work best when levied against activities that are elastic; in other words, people are able and willing to change behavior in order to avoid the tax. It makes sense therefore to accompany regulatory taxes.
Chapter 6.2: Toward a Coordinated Communication Strategy

Policy Options—Stimulus and Government Purchases

Correct proposed tax policies under the following:

1. Lower income and poverty
2. Tobacco control
3. Access to effective health care
4. Improvement in schools and training of skilled workers
5. The role of government in public sector.
What needs to be subsidized are exactly those goods and services we have discussed throughout this book, the systems of health promotion and illness prevention, of ecological health and integrity, of local community self-reliance, of the economy of care and connection. Because they resist commodification, they cannot survive without subsidies derived from the collective resources of people, either through government or through voluntary associations and civil society groups.

There are several ways for governments to provide resources for desired social and environmental purposes and each has a different commodification potential.

- The direct provision of these goods and services, where appropriate, has the most potential for commodification by reallocating society’s resources directly from the tax-paying commercial sector to public goods and services for which markets rarely exist.

- Government can also choose to allocate revenues to the private sector, but with the intention of supporting particular kinds of business, such as small organic farms, neighborhood service providers, housing co-ops, etc. In the U.S. the Small Business Administration was created to serve a particular clientele in this way. By supporting small private providers of LCP goods and services, government limits the amount of direct service it provides while still serving the purpose of commodification and increased employment.

- Government can choose to allocate its resources to support large and powerful corporations in the hopes of stimulating economic growth and employment. This is the tack taken by most industrialized nations in the present period; the one that produces the fewest jobs per capita outlay and the one that accelerates commodification the most.

It may be possible to institute a “green” economic or industrial policy without explicitly addressing commodification. Most of the current green taxes and subsidies are focused in industrializing appropriate technology. Denmark is one of the leaders in this area. Fuel taxes have been used to subsidize a growing wind power industry to the point where the Danes now produce 80% of the world’s wind turbines and export 90% of those they build. This model, the development and production of renewable energy and other clean technology equipment and supplies, and the subsequent export of these goods to a world set on a clean energy path, is the commoditized version of sustainable development. It is necessary if the transition to a more energy- and materials-efficient economy is going to occur, but it is not sufficient to alter the economic system dynamics driven by commodification that underlies the environmental crisis to begin with. All attempts to create a green economy or a green industrial revolution, although extremely important, will find themselves faltering without an accompanying commodification strategy intended to modify the system dynamics.

8.7 Credit policies

Credit is, in effect, borrowing from the future. This makes a lot of sense in the case of large purchases, such as a home, when the benefits are spread out over a long time into the future, in the case of building infrastructure that lasts, and in the case of capital investments that are expected to produce income in the future needed to pay off the debt. Credit does not make sense as a means to support current consumption except under special conditions of necessity. Under the strains of commodification, when almost all human satisfactions are gained through purchase, borrowing for present consumption grows increasingly popular and the economy becomes dependent on the stimulus provided by easy credit. But debt obligations limit the choices individuals and societies have in making decisions on how to allocate their resources in the future. This constrains future opportunities and locks society into a pattern of never-ending economic growth. But as we have seen, as long as economic growth means the increasing mobilization of energy and materials, then ecological constraints will eventually make growth undesirable if not impossible and future debts unpayable. This is a formula for economic collapse and all its attendant misery.

The difficult transition to an environmentally sustainable economy will require changing the patterns of production and consumption and, prior to disaster, shifting investments toward those goods and services that provide the greatest satisfaction for the least expenditure of energy and materials. But as we have seen, these tend to be the locally produced goods, culturally and ecologically appropriate tools, and the services of mutual aid and community building, all of which have some but not large amounts of commodity potential. The transition to a sustainable economy, therefore, will require considerable new investments in things that will not produce large profits on investment. Economic growth cannot be the goal of economic policy. Economic policy will need to be directed toward goals and objectives determined by the vision of a sustainable society. This will require unprecedented levels of intervention in economic decision-making, starting with the allocation of credit toward specific, socially beneficial ends at very low, or no interest. Society will need to gain more control over the availability and price of credit. As we move toward a society built on smaller units of local communities and neighborhoods of mutual aid and relationships of caring with each other and the Earth, we will need large numbers of local, small creditors accountable to the local community and neighborhood. This is, of course, the vision of the early credit union movement.

Government policy in most modern societies affects the availability and price (interest rates) of credit through its taxing, spending policies, and its control over the money supply. These and other tools will need to be directed toward the goals of a sustainable economy if we are to have any chance of success. The difficulties will be enormous and the challenge great.
Chapter 8.6: Toward a coordinated communication strategy

Table 8.7: Coordinated Spending

<table>
<thead>
<tr>
<th>Source</th>
<th>Total</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>US House of Representatives</td>
<td>$1 million</td>
<td>Economic recovery and job creation</td>
</tr>
<tr>
<td>Senate</td>
<td>$1 million</td>
<td>Education and healthcare</td>
</tr>
<tr>
<td>Congress</td>
<td>$2.5 million</td>
<td>Infrastructure and transportation</td>
</tr>
<tr>
<td>Government</td>
<td>$2.5 million</td>
<td>Climate change and energy efficiency</td>
</tr>
</tbody>
</table>

The coordinated spending plan aims to stimulate the economy and improve public services, focusing on key areas such as education, healthcare, infrastructure, and climate change. This approach is designed to create a balanced budget while addressing immediate needs and long-term goals.
Privileged Goods

The major oil companies, the energy, automobile, and a few other industries will resist the change, but resistance can be overcome through an alliance of environmentalists, consumers, and the majority of industrial groups. These groups will understand what Amory Lovins claims, that global warming and other environmental problems are not threats to business, rather, they are huge opportunities to benefit from a major new wave of investment in plants, equipment, appliances, and the other parts of the commodity economy that will be retrofit or replaced. The efficiency revolution will mean new jobs. Every dollar spent on efficiency produces more jobs than a dollar spent on energy production. The first and simplest demand, therefore, is for a global political commitment, following the global warming treaty, to accelerate the existing trends toward energy conservation and efficiency. Public concern about global warming and its effects, along with the spread of information and examples of how to design and produce for super efficiency, will provide the catalyst for change.

The benefit of promoting this vision of a new industrial revolution or an efficiency revolution is that it is a hopeful picture of the future that can be juxtaposed against the sense of foreboding with which many people are looking into the future. It is doable and politically feasible given the natural conjunction of business, consumer, and environmental interests. It is the first step in a decommodification strategy, because it can be popular and at the same time require increased government involvement in markets through public infrastructure investments, tax and subsidy policies, and regulations so that prices reflect the environmental and social costs of products. It will unleash a tremendous amount of creativity and enthusiasm from designers, scientists, and tinkerers of all kinds. The employment benefits will bring portions of the labor movement who will benefit and create a political demand for a just and fair transition for the workers in the old industries where jobs will be lost. This creates the need to assist workers and communities presently dependent on old, energy-inefficient industries to more smoothly make the transition to the new jobs and opportunities.

Reform of the commodity economy will be the first successful battle in the movement for sustainable development, and it will greatly enhance the possibilities of success in later struggles, but it will not succeed by itself, because it will not likely take on the job of providing ongoing economic counterbalances to the pressures of commodification. There are many flaws in the argument for the new industrial revolution, not the least being that retrofitting of the present economy at the scale that will bring about 50% or 90% improvements in energy efficiency will require massive new construction and new production, all of which will use primary materials that require energy to obtain and produce. Energy efficiency estimates will need to include the amount of energy needed for this transition. Furthermore, if the economic savings produced by increased efficiencies are allocated to consumers in a highly commoditized economy, they will likely spend those savings on more commodities. The portion of the savings retained as profits are likely to go into new investments to produce more goods and services. The net result will be continued and perhaps accelerated economic growth. If carried out globally the end result of even a tenfold increase in energy efficiency will lead to massive worldwide increase in energy and materials use.

A strategy of deliberate decommodification, replacing material and energy with knowledge, mutual aid, and community, must therefore accompany any strategy of efficiency if the result is not going to be just increased consumption of energy and materials. Yes, the commoditized economy must be made more efficient and yes, it will be exciting and rewarding to accomplish this task. But the commoditized economy must also be made smaller, and global development policy must turn away from the goal of growing the commoditized economy toward a new goal, improvements in quality of life with less energy and materials. With a decommodification strategy to accompany an energy efficiency policy, the money saved would be allocated toward community building, health maintenance and disease prevention, hands-on care for people in need, agricultural skills building, land conservation, liberal education, and the whole array of public goods presently marginalized by commodification. A portion of the savings of the efficiency and information revolutions must be effectively captured to serve the public interest. The only way for that to occur is for the public to gain or regain control over the institutions of governance and for those institutions to have the capacity to obtain and direct resources toward public goods with little or no commodity potential.

Developing the political will to decommoditize will be more difficult than achieving substantial energy efficiency gains, because decommodification will have no obvious business allies. But it will also be a more popular challenge, because it will cut across many different social movements that have not previously clearly understood the connection between their goals and decommodification. A decommodification strategy will mean having to sever the close alliance between business and government that has created the policies of commodification. It will require removing money from politics as much as possible. This creates the first of many possible political alliances between disparate social movements, environmentalists, and the advocates for good, responsive, publicly accountable government. Seeing that the vast majority of the world’s population favors good government and a healthy environment, the popular base clearly exists for a social and political movement in support of the economy of care and connection.

According to Michael Walzer in his influential book *Spheres of Justice* (1983), the very meaning of tyranny is when those who succeed in one sphere of social life (such as money and commodities) deliberately and unjustly wield the power and influence gained there to dominate in another sphere of social life (such as political influence). The current role of some multinational corporations has been well documented. Liberty, according to this formulation, requires active defense of the boundaries between the spheres. But commodification, which also leads to domination by one sphere (money) over all others, is a "natural" outcome of system dynamics, and the methods of defending against it are not nearly so clear as those in
Chapter 8.7: Toward a coordinated documentation strategy

The importance of money in public life

The idea of money in public life

Influence of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life

Influence of money in public life

The idea of money in public life
Commercial law is now evolving into a global legal framework designed to unleash commercial energies worldwide by minimizing the capacity of states to restrict access to markets. As a result, commoditization pressures are expanding into all potential niches worldwide. Since the legal and political actors unleashing these forces operate at the global level, countervailing pressures must also operate globally. There must be legal and political reforms in the global trade and finance regimes. But since noncommodity solutions to human needs and wants are inherently local, the effects of these countervailing forces must be felt at the local level. New legal and political capacity to stimulate investment in community-based, less commoditized satisfactions for human needs and wants must evolve and go to the level nearest to the people with those needs and wants. There have been several efforts to describe the emergence of global civil society as a precursor to emerging governance capacity that can act with some affect and authority at both the global and local levels. At the same time, nations must invent new legal frameworks that allow localities to innovate economically and that protect them from the colonizing impulses of global forces and actors.

One of the most compelling hopes for the future is the new leadership in Third World development that is emerging throughout the world. These leaders understand the history of colonialism and its effects; they have an understanding of ecology as well as a deep connection with the cycles and potentials of their own land. They are grounded in the values of traditional cultures and open to creative and locally appropriate technological innovations. In every part of the world thousands of these leaders are emerging, putting together the pieces of a strategy for Third World sustainable development. What is emerging is the beginnings of a powerful global social movement. This movement is being simultaneously organized at the local, regional, and global levels. It is a movement for justice, local self-reliance and development, international equality, and peace. If successful it will create the social conditions for the emergence of a new set of political institutions capable of acting in the global economy for the common good. It will create a new global political order and a sound and fair balance between the economy of commodities, which produces the world’s wealth, and the economy of caring and connection, which supports the world’s well being. The institutions of governance that will emerge will coexist at the local, bioregional, regional, and global levels, with problems handled at the lowest possible level, moving up in the structure only as the consequences — such as global warming, global capital movements, and global civil compacts — rise.

In the early part of the next century this movement will flourish in exciting and powerful ways. The leadership will come from people of the former colonial world, the indigenous people, women, particularly women of color, the small farmers, and traditional peoples. Their struggles to gain the political capacity to challenge entrenched systems of wealth and power will inspire millions of people, especially the young, in the wealthy enclaves of the world. Like youth movements of the past, these will gain alliances among the older generations, particularly the “baby boomers” of North America as they head toward the later parts of their lives and begin again to focus on the things of this world that truly matter. This will be an excit- ing time. The music, art, and celebrations of the Third World will be adopt- ed and adapted by youth everywhere, as it already is in the popular music of the young. As the movement for sustainable development and justice grow in different parts of the world, their struggles and successes will inspire each other. The picture of determined people taking charge of their own destinies will be beamed throughout the world via TV and the Internet. Instantaneous communication will make it difficult for these movements to be suppressed, and their leaders disappeared.

The objectives of this movement will be the protection of the health and integrity of the Earth’s ecosystems, its diverse forms of life, and the elimi- nation from the Earth of human exploitation, poverty, and misery — the two dreams that have been linked now irreversibly in the concept of sus- tainable development. As we have seen, development cannot be made sustainable without countering the pressures of commoditization. Shar- ing and improving an understanding of commoditization and its effects on society and the environment has been my goal in writing this book. My hope is that by understanding how commoditization works and how differ- ent policies and institutions can be designed to counterbalance it, the movement for caring and connection can be better situated to act strategi- cally and effectively.

In the end we must each find proper balance in our own lives between our global dreams and our local connections. We can each direct our personal time, attention, and resources to make certain our individual and local com- munity economy of caring and connection thrives. Where the institutions of governance fail us, we must join with others to reclaim them, reform them and make them the tools by which we act for the common good. The laws of nature that determine the structure and design of our world are laws we cannot avoid. We can learn from them and learn how to live well within them, but we ignore them at our peril. The laws that determine the structure of our economy, on the other hand, are partly those of nature and partly of human design. What humans design we can change purposely and intel- ligently using the best information we have. The information we now have is that our economy privileges commodities over all else and thereby distorts our way of life so that the things that really matter — our connection and caring for each other and the Earth — are forgotten and ignored. We have the capacity to change this by making the economy accountable to govern- ance, and governance accountable to citizens.

Notes