5. **Our Unsustainable Society**

*Basic Causes, Interconnections, and Solutions*

Ted Trainer

The first purpose of this chapter is to summarize the reasons for seeing the quest for economic growth and affluent life-styles as the fundamental cause of the rapidly deteriorating global predicament. (For detailed argument see Trainer 1985, 1989, and 1995a and the Cobb, Lewis, and Gowdy chapters in this book.) This obsession largely explains many apparently unrelated problems, most notably the environment, resource scarcity, Third World deprivation, conflict between nations, and social breakdown.

**Mineral Resources**

Except for a very few items, to extract minerals from crustal rock, as distinct from ore deposits, would require prohibitive quantities of energy, for example, ten to a thousand times that required for the poorest ores. Estimates of the quantity of minerals that have been formed into ore deposits within the top 4.6-kilometer depth of the earth’s continental crust have been derived by Skinner (1987). It would be optimistic to assume that 10 percent of these ore deposits can be retrieved (ignoring ore grades and energy costs) (Trainer 1995d). If we also assume that mineral consumption will increase from now until 2060 when it will have reached the level required to provide 11 billion with present rich-world per capita amounts, by 2060 43 percent of the
third-six most commonly used mineral items would be exhausted. In other words, unless the resource estimates are grossly mistaken, it will be impossible for all people to rise to the per capita levels of mineral-resource consumption rich countries have now.

**Food**

It takes about 2 hectares (about 5 acres) to provide the diet for one person in a rich country (Rees 1992, 125). To provide such a diet for the 11 billion people likely to live on earth in 2060 would therefore require 22 billion hectares. However, there are only 13 billion hectares on the planet, and all available cropland in use is not likely to exceed 1.5 billion hectares. Obviously, it would not be possible for all the present world population of 5.5 billion to have rich world diets, let alone all the people soon likely to live on earth.

**Biological Resources**

The annual American per capita consumption of wood requires 1.3 hectares of forest (Pimentel et al. 1994, 369, 371). For 11 billion people, 14.3 billion hectares of forest would be required, which is 3.5 times total world forested land area.

Biological resources are more scarce than minerals or energy. The rich-world per capita consumption of most resources is fifteen to twenty times that averaged by the poorest half of the world’s people. If all people expected late next century were to use timber, water, and other biologic resources at the rate people in rich countries do today, world annual production of these resources would be about ten times what it is today. Most biological resources would be exhausted in a few decades at most.

**The Net Biological Productivity of the Planet**

About 40 percent of all the biological production of the planet’s land mass, that is, 40 percent of all plant and animal growth, is ultimately harvested by humans (Daly and Cobb 1989, 143). This figure includes the timber we take, the fields our animals graze, all crop and orchard lands, and so on. Yet, world population is likely to double. One species out of the possibly 30 million on the planet will not likely be able to gear 80 percent of the planet’s land biological pro-
ductivity to its purposes. Remember that if by 2060 all Third World people were to become as affluent as people in rich countries are now, annual demand on resources would be ten times what it is now, hence limits to growth. Theorists agree with Korten’s general conclusion that “sustained economic growth is not possible because human economic activity already fills the available ecological space” (Korten 1990, 97).

**The Environment**

The way of life taken for granted in rich countries has damaging impact on the environment. Large quantities of resources are taken from the environment and dumped back into it as waste. The average American consumes twenty tons of new materials every year (U.S. Bureau of Mines 1985). The limits-to-growth position is that the environmental problem will not be solved until we move to ways of life that enable us to greatly reduce such figures. Those ways must involve far less production and consumption than we average now.

This point is clearly made with respect to the greenhouse problem. The Inter-governmental Panel on Climate Change (1990) concluded that to prevent the carbon content of the atmosphere from increasing any further, fossil fuel use must be reduced by 60 to 80 percent. (Brown 1991 p. 24). If it were cut by 60 percent and shared equally among 11 billion people, each person in a rich country would receive only one-eighteenth of the amount each uses now. In other words, enormous reductions in resource use and environmental impact must be confronted, and the basic implication of the limits-to-growth argument is that these reductions will not be achieved without radical change in life-styles and systems.

Possibly the most disturbing element in the limits-to-growth case is that several indexes of global agricultural and biological productivity that have grown rapidly in recent decades have tapered to plateau or declined in the 1980s. This is true for world meat production, irrigated land area, fertilizer use, fish production, grain land, and grain production. Grain production rose at about 3 percent per annum between 1950 and 1980, but in the 1980s averaged only 1 percent per annum growth. The total area of land for agriculture is not likely to increase. As new (and more costly) land is being brought into use, much the same area of productive land is lost through erosion and other forces. World fish catch has fallen below the level of the early
1980s. It appears, therefore, that after hundreds of years of constantly increasing production, we are in a decade when many crucial biological limits are being reached. The World Watch Institute concludes, "The earth's biological productivity is shrinking" (Brown 1990, 7).

The present levels of global output and consumption are inflicting unsustainable damage on the planet and they appear to be approaching limits; yet, high living standards are being provided for only 1 billion people and eleven times as many will probably have to be provided for soon. Similarly, if 3 percent per annum growth in world economic output is averaged until 2060, world output would be eight times present levels and would double every twenty-three years after that. Such multiples would not be achievable if we were already approaching limits for agricultural production.

**Energy**

If the most common estimates of potentially recoverable resources of oil, gas, coal, shale oil, and uranium are taken, and it is assumed that 11 billion people were to use energy at the per capita rate of people in the rich countries today, all these energy resources would be exhausted in about forty years (Trainer 1985, chapter 4; Trainer 1995a, chapter 8). This projection ignores the greenhouse problem, which implies that most of the remaining quantities of all of these sources except uranium should not be used.

It is very unlikely that present levels of world energy consumption can be maintained with nuclear or renewable energy sources. A world in which 11 billion people have present rich-world energy use per capita would require about 250,000 giant reactors—about a thousand times present capacity. Nuclear fusion is at best many decades away, and owing to the scarcity of lithium, the most likely process has potential similarly limited to that of fossil fuels. Therefore, for perhaps a century the reactors would have to be mostly "breeders," meaning about 1 million metric tons of plutonium constantly in use or being moved from reactors to reprocessing plants, and one worn-out reactor buried every hour, to say nothing of waste or accident problems (Trainer 1985, chapter 5; Trainer 1995a, chapter 8).

Solar, wind, and other renewable energy sources must eventually be the forms on which we entirely rely, but it is not plausible that they could sustain the present liquid fuel or electricity demand of the rich countries. (The reasons are detailed in Trainer 1995a, chapter 8; 1995c.)
The impressive figures now being published for solar and wind energy costs come from the world’s few best sites of experimental projects. They do not take into account the huge losses that would be involved in the storage and transport of electrical energy from sunny regions to high latitudes where most rich-world people live. If photovoltaic cells producing hydrogen are used to do this, about 96 percent of the energy harvested is lost by the time electricity is delivered, because of the inefficiencies of conversion, storage, and transport. Plant construction and fuel costs for a plant to deliver a thousand megawatts would be near $65 billion (assuming $500 per meter total installed system cost, and 20 percent efficient cells). This is some thirty-three times the cost for a coal-fired plant, even ignoring all the other costs, such as for operation and maintenance, company profits, insurance, and the interest payments on borrowed capital. Interest costs would probably double or treble the construction cost. The best choice might be thermochemical, or hot rock, energy storage and transmission by long-distance high voltage lines. This choice might cut the construction cost to $26 billion, but formidable problems would have to be solved, such as how to store vast quantities of gas or heat. An industrialized society could not survive the at least twentyfold multiple of present electricity costs that would seem to be involved.

Wind energy will also contribute to a sustainable world economy, but is not likely to support present electric demand. Only 0.6 percent of the United States is suitable for efficient wind generation of electricity, although this area might produce electricity equal to 20 percent of present demand, ignoring the storage problem (Elliott, Wendel, and Gower 1991). Europe (except for the United Kingdom) has poorer wind resources than the United States. Even in the United Kingdom, wind might at best meet less than 10 percent of electric demand (Department of Trade and Industry [U.K.] 1993, 2). The main problem with wind energy is that even in a good region, there is a good probability that all mills will be idle at the same time. This probability is generally taken to limit the contribution of wind to a system to 5 to 20 percent of demand.

There is too little land to fuel present world road transport by biomass, let alone a fleet ten times as large, which is what we would need if 11 billion people had as much transport per person as we in rich countries have now.

These have been some of the main reasons for not accepting the common assumption that affluent industrial societies can be sustained
simply by switching from fossil fuels to renewables. (Again, for detailed argument see Trainer 1995c.)

In view of these considerations regarding crucial mineral, biological, and energy resources, it is difficult to escape the conclusion that it will be impossible for all people to rise to the life-styles people in rich countries have today. These life-styles exist essentially because the rich countries are consuming 75 to 80 percent of world-resource output. The main implication has been appropriately summarized by the statement that "the rich must live more simply so that the poor may simply live." In other words, if the limits-to-growth argument is basically valid, rich countries should face up to major reduction in their average per capita use of resources.

Limitless Growth Is the Supreme Goal

The limits-to-growth argument is that present levels of production, consumption, and resource use in rich countries are unsustainable. Yet, the fundamental and unquestioned goal of almost all economists, politicians, journalists, and ordinary people is to increase "material living standards,"—per capita consumption and the GNP—as much as possible and without limit.

Growth advocates are unconcerned about the multiples of present output that their commitment will soon lead to. If output grows at 3 percent per annum, then in seventy years the economy will be producing eight times as much every year. For a 5 percent growth rate, the multiple is thirty-two. In the 1980s Australia averaged 3.2 percent per annum economic growth. This average was clearly insufficient for economic health, because virtually all economic problems became more serious. Let us then assume that 4 percent growth would be sufficient to make our economy healthy. (Prime Minister Keating has said at least 4 percent growth is required to start bringing unemployment down.) If there is 4 percent per annum growth in an economy, in seventy years it will be producing sixteen times as much each year as it does now. If we assume that by 2060 all the world's people will have risen to the living standards we in rich countries would have by then, total world economic output would be 220 times what it is today.

Even if we assume that the rich countries will have 3 percent per annum growth to 2060 while the Third World rises to the present rich-world living standard, total world economic output would be twenty times as great as it is now.
These multiples are absurdly impossible. Yet, this is the path current social and economic policies commit us to. There are strong grounds for concluding that present levels of resource use and environmental impact are totally unsustainable, yet we have an economic system that will seek to multiply them many times in coming decades. It is difficult to understand the mental processes that enable all mainstream economists and politicians to proceed as if there were no need whatsoever even to consider possible limits to growth.

**The Third World**

The foregoing argument has been about the limits that exist to growth. We must also face up to the claim that pursuing growth is causing the major global problems facing us. This claim is most evident when Third World “development” is analyzed (Trainer 1989, 1995a).

Development has been conceived of primarily in doing what will stimulate the maximum increase in GNP, that is, stimulating as much business activity, sales, exports, investment, and so on, as possible. This “growth and trickle down” approach has failed to solve the problems of most Third World people. The real living conditions of the poorest one-third of the world’s people have deteriorated over the past decade. Possibly a billion people have an insufficient diet. Hundreds of millions are constantly hungry. Perhaps 2 billion do not have safe drinking water. Third World debt has risen to impossible levels. More than thirty-five thousand infants die every day from avoidable causes.

The basic reason for the failure of conventional development theory and practice is the unequal distributions of wealth and resources that inevitably result when market forces and growth are the guiding principles. If increasing sales and business turnover is one’s development goal, one will facilitate the flow of resources to those who can pay most for them and into those investments likely to generate most sales and income. The result will be that the relatively rich take most of the scarce oil and other resources for sale while poorer people must do without them. Hence, rich-world people average seventeen times the energy consumption averaged by the poorest half of the world’s people, and one-third of all world grain production is fed to animals in rich countries (World Bank 1990, Trainer 1989).

Why do these appallingly unjust distributions occur? The answer is simple. The rich countries take most of the world’s resource output
simply by bidding more for it in the global marketplace. They also take many of the things produced by Third World land, labor, and capital (including the coffee, tea, and cocoa produce on 16 million hectares of Third World land). Many plantation and mine workers are hungry, while we enjoy the luxuries they produce. The appalling distribution and deprivation are therefore direct consequences of the way the global market economy functions. A market will always enable the relatively rich to take what they want and thus deprive those in most need.

The development that takes place will also be inappropriate to the needs of most people, because returns on investment are not maximized by investing in the production of cheap goods for poor people. More important, the resources the poor once had will be drawn into producing items for export. Possibly the worst illustrations of this are the millions of hectares of the best Third World land now growing crops to export to the rich countries while some of the world’s most impoverished people work in those plantations.

There is therefore a contradiction between developing things that are most urgently needed and developing what will most maximize returns to investors and add most to the GNP. The most appropriate development strategies would reduce the GNP, for example, by taking land out of export cropping and enabling people to plant it with Permaculture “edible landscapes,” a system of agriculture emphasizing the use of renewable resources, to supply themselves with food and materials outside the cash economy.

Living standards in rich countries could not be anywhere near as high as they are if the global economy were more just; it delivers most of the world’s wealth to us while it ignores the poor. What would your coffee cost if those producing it were paid decent wages? The rich countries often support brutal dictatorships willing to keep their economies to the policies that benefit the rich countries. When any move has been made by poor people in the Western sphere of influence to an approach to development that would primarily benefit the poor, we have branded it as communist subversion and sent military aid to stamp it out.

Above all, the limits-to-growth analysis makes clear that the conventional conception of development is totally mistaken about goals. It is not possible for all Third World people to rise to the living standards of the rich countries. Yet, that goal is still taken for granted in almost all official development theory and practice.
Peace and Conflict

Some of the most disturbing implications of the limits-to-growth analysis of the global situation arise regarding the problems of peace and conflict. The foregoing argument has been that only a few can have the life-styles that we in rich countries have, and we can have them only for a historically short period, because there are not enough resources for all to rise to anything like the living standards we take for granted. But we who have per capita incomes averaging sixty times those of the poorest half of the world’s people are obsessed with getting richer as fast as possible and without end. Now, if we and all others continue to pursue that goal, as population doubles, and resources become scarcer, there can be no other conceivable outcome than increasing levels of conflict in the world.

Much of the foregoing argument has been that we have an empire, a sphere of influence, without which our living standards could not be as high as they are. We have to be extensively involved in military activity to secure our lines of supply from the empire. We could not be sure of getting all that oil from the Middle East if we did not have aircraft carriers in the Mediterranean, rapid deployment forces specially trained and ready to fly into trouble spots, minesweepers able to clear vital shipping lanes, the military presence that stands as a warning to others that they had better not interfere with “our” oil fields, and the contingency plans for dealing with any rebel tribesmen or any sectional uprising that might cut the pipelines. We must be able to protect our allies, interests, trading arrangements, and clients.

United States Army Gen. M. D. Taylor said that “U.S. military priorities must be shifted . . . towards insuring a steady flow of resources from the Third World.” He referred to “a fierce competition among industrial powers for the same raw materials markets sought by the United States” and “growing hostility displayed by have-not nations towards their affluent counterparts” (Cypher 1981). Speaking to American soldiers at Camp Stanly, Korea, President Johnson said, “Don’t forget, there are two hundred million of us in a world of three billion. They want what we’ve got—and we’re not going to give it to them!” Ashley says that “expansion is a prime source of conflict. War is mainly explicable in terms of differential growth in a world of scarce and unevenly distributed resources” (1980, 3, 126). Nettleship makes the same point: “War is an inevitable result of the struggle between

In other words, the main source of conflict and war in the world is the ceaseless quest for greater wealth and power. We have no chance of achieving a peaceful world until nations stop being greedy and work out how to live without constantly striving to grow richer. Yet, the supreme commitment in our economy is to rapid and ceaseless growth!

The Basic Problem: The Economy

There can be no solution to the problems outlined above within an economy driven by the profit motive, market forces, capital accumulation, and economic growth (Trainer 1995b). The problems are being generated by these factors, most obviously by the obsession with constantly increasing production and consumption in a world with finite and scarce resources. (Nevertheless, a satisfactory economy could have an important place for market forces and free enterprise; see below.) If the limits-to-growth analyses are at all valid, it is clear that not only must we eventually arrive at a zero-growth or steady-state economy but also we in rich countries must first undergo a long period of negative growth in which per capita production and consumption measured in cash must be drastically reduced.

The second major fault built into the foundations of this economy is the very mechanism its advocates are most proud of: the market. As has been explained, the more freedom that is given individuals to maximize their profits in a market, the more effectively will resources flow to those who are richest, and the more surely will there be development of the industries that produce for the rich. More importantly, the more scope that is given the market to determine what is done, the less influence will be exercised by considerations of morality, social benefit, or ecological sustainability. A glance at the Third World problem or the situation in rich-world urban ghettos or the ecological problem shows that all too often the right policies require action contrary to market forces. It requires action that free enterprise will not take because it would not maximize profits and it would either require increased government expenditure and therefore taxation, or the return of control to local people so that they could collectively develop solutions to their problems largely outside the cash economy.
It is difficult to understand why faith in growth and the freedom of enterprise remains almost unchallenged despite its extraordinarily bad record of achievement. Consider the fact that although Australia’s GDP per capita in real terms has more than doubled since 1950, and increased by one-third in the 1980s, in the 1980s various indexes show that inequality increased 25 percent, poverty increased 70 percent, the unemployment rate almost doubled, the rural debt multiplied by nine, and the foreign debt multiplied by ten (Trainer 1995b, chapter 4)! The picture would be worse if we could add numerical indexes for environmental quality and the quality of life. For instance, the Australian rate of youth suicide has doubled in a generation and problems of stress anxiety and depression are reported to be ten times as prevalent as they were a generation ago. Extensive evidence indicates that as GNP per person has more than doubled in rich countries in recent decades, measures of the quality of life have not increased or have fallen. Easterlin came to this conclusion after reviewing more than thirty studies (1976). Daly and Cobb’s detailed Measure of Sustainable Economic Welfare in the United States declined for two decades despite continued economic growth (Daly and Cobb 1989, 420). Douthwaite’s The Growth Illusion (1992) deals at length with evidence and argument supporting his claim that growth has not been accompanied by improvement in the experienced quality of life.

It requires little sociological insight to understand how the obsession with narrow economic goals has contributed to social breakdown. To facilitate the maximum rate of increase in economic activity, resources have been predominantly allocated, not to helping the most disadvantaged and needy, nor to developing the facilities most likely to build cohesive and supportive communities, but to enabling more goods and services to be marketed profitably. All impediments to this end, set by social structures, customs, or traditions, must be removed. Hence, the accelerated atrophy of community and the elimination of the informal and noneconomic factors that once supported people, plunging everyone further into an individualistic competitive struggle in an economy that will not provide for all. It is no surprise therefore that the social wreckage of homelessness, suicide, and violence rises higher and higher. These are direct consequences of making growth the supreme goal, and of refusing to challenge the trickle-down myth claiming that growth, the profit motive, and the freedom of enterprise are the best principles for enriching all in the long run.

Possibly most disturbing are the effects of the economy on bonding, mutual concern, civility, social responsibility, and citizenship. A
satisfactory society is not possible unless its members have a good
degree of concern for the welfare of others and of the society as a
whole. Yet, our economy is founded on the principle that the best
outcomes for all will follow if all individuals seek to maximize their
individual advantage and wealth.

Economic theory is largely responsible for the predicament we are
in (Trainer 1995b, chapter 11). It pretends to be the theory of econom­
ics in general, but it is only the theory of capitalist economics; that is,
it is only about the form and functioning of the production, distribu­
tion, and exchange mechanisms evident within an economy where the
overriding goal is to maximize production for sale and freedom of
enterprise. This theory can say nothing whatsoever about the perhaps
half of the real economy, which does not involve cash: the household
sector. Many other realms of value are crucial for production and
distribution decisions that have little or nothing to do with cash value,
such as morality, justice, quality of life, work experience, personal
growth, culture and tradition, community, and, above all, ecological
values. Yet, in the past twenty years we have entered an era in which
all considerations other than the maximization of cash benefits are
being deliberately and energetically swept aside. Public assets are being
sold off, protection is being eliminated, the last remote areas of the
Third World are being drawn into the market system, all barriers to
“trade” (that is, impediments to the access of transnational corpora­
tions to new resources and markets and profitable business opportu­
nities) are being removed—all in a desperate effort to “get the economy
going again.” The conventional economist knows no other solution to
problems of recession and unemployment than to facilitate more busi­
ness turnover, regardless of how great the volume of unnecessary and
wasteful production might already be.

Since the 1970s the global economy has entered a period of se­
rious crisis that is essentially due to the inability to sell all that can
be produced. This crisis has generated a frantic effort to find profit­
able investment outlets for all the capital that is constantly accumu­
lagating (in the United States the amount available for investment per
capita is estimated to double each twenty years [U.S. Bureau of Mines,
1985, 6]). This effort explains the “casino capitalism” evident in specu­
lation on commodities, takeovers, stock markets, and foreign exchange
dealings, where more than 90 percent of the deals are gambles on
changes in exchange rates. It also explains the radical global restruc­
turing that is going on, especially the privatization and elimination
of arrangements that once protected people, regions, industries, and nations from the ravages of market forces. Hence, the new orthodoxy enforced by supranational agencies such as the World Bank through the General Agreement on Tariffs and Trade and now the World Trade Organization, which prevent governments from taking action against patently unjust, environmentally destructive, or socially damaging practices, on the grounds that there must be no interference with the freedom of trade. Why do governments go along with these policies, which literally entail the destruction of their societies and the further impoverishment of their poorest people? Because they have learned their orthodox economics well; they know that the supreme goal and the only conceivable solution to our problems is to generate more business turnover, more production for sale, more growth.

It should be obvious that even if there were no limits-to-growth problems, this economic system cannot solve the problems it now generates at an accelerating rate. It provides well for perhaps only 10 percent of the world's people, that is, the richest half of those who live in the rich countries. It is dumping more and more of the people in those countries into poverty and a poor quality of life. And it has been rapidly burning up its resource and ecological capital; from here on, those bills will start flooding in. The recent emergence of much critical literature and many alternative economics organizations, such as the New Economics Foundation and the Human Economy Network, testify to the increasing recognition that a radically different economic system is required.

The Form a Sustainable Society Must Take

If the limits-to-growth analysis of our global predicament is valid, there are four crucial and inescapable implications for the nature of a sustainable society: (1) it must have materially simple life-styles; (2) there must be a very high level of local economic self-sufficiency; most of the things people need must be produced by local labor, land, expertise, and capital; (3) there must be much more cooperation and much less competition than there is in present society; and (4) above all, there must be no economic growth; it must be a steady-state economy. These principles mean fundamental change in life-styles, in the geography of settlements (that is, we must mostly build villages), and in the economy. Some elaboration on these key themes follows. (For a detailed account see Trainer 1995a.)
Simple Life-styles

Living simply does not mean being deprived of anything that matters. It means being content with what is sufficient—for example, sufficient for comfort and hygiene. Often the difference between a sufficient and a normal standard in consumer society is great. For example, normal housing typically costs ten to twenty times as much as perfectly adequate and aesthetically pleasing housing built from mud brick (Trainer 1995a, chapter 4).

Self-Sufficiency

Most crucial for the development of sustainable settlements is the need for small-scale local economies that are highly self-sufficient. First, households could produce much more for themselves than they do at present, through home gardening, knitting, bottling and preserving, sewing, construction, and homemade entertainment. Second, there must be far less transport and trade.

However, it is the town, suburban, and neighborhood levels that are most important here. These must become thriving local economies, producing many of the things people need for a high quality of life from resources that exist locally. This means much decentralization, with many small places of employment, enabling most people to get to work on foot or by bicycle. Some of these enterprises could be the usual types, such as bakeries, but many could function as part-time hobby production. It would make sense to retain some big mass production factories, but many of the things we need could come from small local craft production, thus minimizing factory work.

Many market gardens could be located throughout suburbs within cities, for example, on derelict factory sites and beside railway lines. This would reduce the cost of food by 70 percent, especially by cutting its transport costs. More important, having food produced close to where people live would enable nutrients to be recycled back to the soil through garbage-gas units. Two of the most unsustainable aspects of our present agriculture are its heavy dependence on energy inputs and the fact that it extracts nutrients from the soil and does not return them.

Houses on each block could become a neighborhood workshop, recycling store, meeting place, barter exchange, and library. We could dig up many roads, thereby increasing urban land area by one-third or more, because there will be far less need for them when we reduce production and decentralize. When we have dug up those roads, we
will have much communal property, so we can plant community orchards and forests and put in community ponds for ducks and fish. Most of the neighborhood could become a Permaculture jungle, an “edible landscape” crammed with long-lived, largely self-maintaining productive plants, such as nut trees.

There would also be many varieties of animals living in our suburbs, including an entire fishing industry based on tanks and ponds. Many materials can also be freely available from communal woodlots, fruit trees, bamboo clumps, ponds, and meadows. Many areas could easily supply themselves with the clay to produce all the crockery needed. Similarly, just about all the cabinetmaking wood needed could come from those forests, by means of one small saw bench in what was a garage.

There is much scope for deriving materials from plants that could be grown in our suburbs, such as bark for tanning. Dyes from plants, tar and resins from distilled flue gases, wool, wax, leather, feathers, paint from oil seeds like sunflowers, and many medicines are all possible. Small local businesses and hobbyists could make use of such locally produced materials.

Most all neighborhoods have all the capital they need to develop the things that would most enrich them, yet this never happens when savings are put in conventional banks. The solution is to form small town banks in which the savings of local people will be lent only to firms and projects that will improve the local region. Many neighborhoods and towns are now starting their own banks and moneyless trading systems (such as LETS).

More Cooperation, Less Competition

The third necessary characteristic of the alternative neighborhood is that it must provide a much more communal way of life. We must share more things. We could have one stepladder, one electric drill, and so on in the neighborhood workshop rather than one in every backyard. We would be on various voluntary rosters and committees and on working bees to carry out most of the child minding, nursing, basic educating, and care of aged and handicapped people, as well as perform most of the functions that councils now carry out for us, such as maintaining our parks and streets. We would therefore need far fewer bureaucrats and professionals and we would need to earn less money to pay the taxes now needed to support them. Each of us might contribute half a day a week to community work projects, such
as maintaining the orchards and woodlots that provide our “free” goods.

If we lived more simply, eliminated much unnecessary production, and shifted much of the necessary production to backyards, local small businesses, cooperatives, and the noncash sector of the economy, we might need to work in an office or a mass production factory only one or two days a week. We could spend the other five or six working and playing in the neighborhood doing many varied, interesting, and useful things.

We would live in leisure-rich environments. Suburbs at present are leisure deserts. The alternative neighborhood would be full of interesting things to do, familiar people, common projects, animals, gardens, forests, and landscaping. People would be less inclined to go away on weekends and holidays, greatly reducing national energy consumption.

Most important of all, there would be far more community than there is now. People would know one another and interact on local projects. One could certainly predict a huge decrease in social problems. It would be a much healthier and happier place to live, especially for older people.

There would be genuine participatory democracy. Most of our local policies and programs could be worked out by elected nonpaid committees, and we could all vote on the important matters concerning our small area. The kibbutz settlements in Israel are good examples of this kind of self-government. There would still be important functions of state and national governments, but relatively few.

**No Economic Growth**

There would be no chance of making these changes while we retained the present economic system. Market forces and the profit motive might have a place in an acceptable alternative economy, but they cannot be allowed to continue as major determinants of economic affairs. The basic economic priorities must be planned according to what is socially desirable (democratically planned, mostly at the local level, not dictated by huge and distant bureaucracies). However, much of the economy could remain as a (carefully monitored) free enterprise carried on by small firms, households, and cooperatives, using local markets, so long as their goals were not profit maximization and growth.

The new economy would have a number of overlapping sectors. One would still use cash. In another, market forces would be allowed
to operate. One sector would be fully planned. Another would be run by cooperatives. Another would involve barter and gifts (that is, just giving away surpluses). In one sector there would be totally free goods (for example, from the roadside fruit and nut trees).

Most of us would live well without much need for cash incomes, because we would not need to buy very much. Consequently, we might work only one day a week for money and spend the rest of the week working and playing in our neighborhoods in a wide variety of activities. Production would be greatly reduced, as would the GNP. There would be no unemployment and no poverty (there are none in Israel's kibbutzim). We would have neighborhood work-coordination committees, who would make sure that all who wanted work had a share of the work that needed doing.

The alternative economy is being thought of as a "third way"—quite different from free enterprise and big-state socialism but combining some aspects of both within a context of decentralization and small scale, with no concern to increase production and consumption over time; indeed, the supreme goal for decades would be to reduce production and consumption throughout.

This vision does not imply any reduction in research or sophisticated technology. We could still have all the high-tech and modern ways that made sense, for example, in medicine, windmill design, public transport, and household appliances. We could have far more resources for science and research, and for education and the arts, because we would have liberated all the resources presently being wasted in the production of unnecessary items, including arms.

The past two decades have seen the emergence of much literature and many groups working on the general limits-to-growth analysis of the global crisis summarized above. More recently there has been the beginning of practical ventures aimed at building alternative settlements outlined. There is now a global ecovillage movement, which includes hundreds of long-established rural intentional communities and more being planned and built in the hope of becoming influential examples of sustainable settlement (in Context Inst. 1995a, chapter 17).

Many would regard the account of the required alternative society given here as naively utopian and impossible to attain. The point of this chapter has been to make clear that this is the general form a society must take if it is to be sustainable, whether we like it or not, and whether or not we think it is achievable. We will either make it to a society characterized by simple life-styles, cooperative arrangements, and zero
economic growth and local economic self-sufficiency—or we will not achieve a sustainable society. There are persuasive reasons for concluding that we will not have the collective sense to take this path, given the gross irrationality, indifference, and irresponsibility now characteristic of affluent-consumer society.

The most important research tasks now have to do with working out how best to assist country towns and city suburbs to grasp the need for transition and to begin working on their salvation. Many country towns are dying, many people are suffering the boredom of unemployment in cities. The problem is how to develop the procedures by which the vast but idle personal, material, and financial resources can be applied to building new social and economic systems that will enable these people to provide one another with most of the things they need.

The Rocky Mountains Institute’s Urban Renewal Program is an example of the pioneering action we urgently need on a large scale. A team goes into a town to work with local people on questions such as: Are residents paying money that could be reduced, for example, by insulating houses to cut fuel bills? What things are being imported that the town could set up small firms to produce? What resources, such as idle land, buildings, retired people, and sources of capital, does the town have that could be applied to development that would enrich people’s lives? Can there be a market and festival day each month? Can we put some of our savings in a fund to facilitate the start-up of much-needed little firms that would give incomes to more of our people? Can we plant fast-growing woodlots to save money on heating fuel? Can we start a cooperative poultry, rabbit, and fish group to give us good fresh and cheap meat? What town developments might be carried out by weekly voluntary working bees? What leisure, entertainment, and cultural activities could we organize?

Despite the alarming magnitude of global problems and the virtually complete failure of governments, bureaucracies, mainstream economists, and journalists to attend to the limits-to-growth analysis or the radical-conserver alternative, there are now grounds for optimism. There is much literature agreeing on the form that a sustainable society must take, and for two decades small groups have been pioneering the experimental development of ecovillages. The outcome is anything but certain and immense dangers loom on all sides, but at least the general path to sustainability is now clearly evident.