

SUSTAINABILITY PROBLEMS WITHIN ORGANIC AGRICULTURE AND WHAT IT WOULD TAKE TO SOLVE THEM

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One of the central reasons why efforts to solve the problems of agriculture have failed is because we investigate the problems of agriculture in isolation, as if our problems could be solved just by making changes in agriculture. The reality is that farmers are caught within an economic system that is inimical to sustainable agriculture and inimical to rural community. The purpose of this paper is to explore this larger picture and to invite serious dialogue about how agriculture can be better integrated into communities.

Introduction

Picture an organic farmer astride his tractor, tilling his field, trying to get a good seedbed for spring planting. Whether he is astride a 35 horsepower 1960 Massey Ferguson or a 200 horsepower 2006 John Deere, it doesn't matter. On either picture, the most obvious sustainability problem in organic agriculture comes clearly into view: its dependence on cheap and plentiful oil supplies.

Even though organic farmers don't use fertilizers or pesticides derived from fossil fuels, we do rely on fossil fuels for our tractors, trucks and cars; i.e., for tilling to prepare seedbeds, for tilling to control weeds, for planting, harvesting, packaging, marketing, accessing off-farm inputs, and so on.

Given its environmental costs, this fossil fuel dependence is, in the first analysis, a problem of *biological* sustainability¹, and some organic farmers have been researching ways to decrease this dependence.² But oil dependence is fast becoming *also* a problem of *economic* sustainability for organic farmers, because of the rising price and declining stocks of oil worldwide.

The problem of peak oil³ might even seem to make fossil fuel dependence the most pressing problem facing organic agriculture in the 21st century – particularly given the limitations of proposed alternatives for oil.⁴ But this would be wrong. The problem of fossil fuel dependence finds its origin in a larger and more enduring problem built into the very political and economic structure of western societies. This is the problem of centralization.

In this paper, we outline the problem of centralization built into capitalism, and suggest a solution that involves integrating agriculture into society. It is a solution that is simultaneously traditional in terms of the cultural and economic changes it proposes, yet radical in terms of how profoundly it would change our lives and our communities.

Agriculture and the problem of centralization

One of the central reasons why efforts to solve the problems in agriculture have failed is because we investigate the problems in agriculture in isolation, as if our problems could be solved just by making changes in agriculture. The reality is that farmers are caught within an economic system that is inimical to sustainable agriculture and inimical to rural community. In fact, the inability of western governments to resolve “the farm crisis” in any of the many forms it has taken over the past 50 years has led many observers to conclude that “the farm crisis” is no crisis at all, but rather, a natural outgrowth of the centralizing and exploiting tendencies of our political and economic system. That’s what we will explore in this section.

The economic system we are in is a free enterprise system based on profit. It is technically more accurate to call it a mixed economy – a mix of socialist and capitalist structures – because several of the key institutions we depend on in Canada – hospitals, prisons, schools, mail delivery, health and environmental regulation, etc. – are organized as state-run enterprises. But the dominating economic ethos in Canada, as in most western democratic societies, is free-market liberalism – the strident belief that government should intervene in economic matters as little as possible, so as to let market forces lead us on the path to greatest efficiency unconstrained and undiverted by government regulation. Perhaps the most accurate term for it, then, is “moderated capitalism.”

However we label it, our economic system moves relentlessly in the direction of centralization, the process of ever larger enterprises replacing smaller enterprises. It is a process of big fish eating smaller fish, and in turn being eaten by still bigger fish. It is caused by economic and social conditions which make it difficult for smaller operations to survive, and so they are forced either to shut down or to sell out to larger operations, who then get even larger, often increasing even more their production rates and economies of scale – exerting even more pressure on the remaining small operations through further drops in commodity prices.

It is a process that has been devastating agriculture since World War II, eliminating over 80% of North American farmers since that time. And it has accelerated with new technologies designed to increase yield but affordable only by farmers wealthy enough or risk-willing enough to invest in them. The impact of new technologies is that they enable their purchasers to increase their amount of production, yet they also increase the costs of production. This leads to flooding of markets, further decline in prices for large and small producers both, and even worse decline in profit margins for those who cannot afford the new technologies.

The economic viability of present-day farms is further challenged by the fact that world oil extraction has either peaked or is very close to peaking. While oil companies claim that there is over 40 years left of oil reserves, the problem doesn’t begin after the last drop is used. The problem begins after the peak of production has passed. Demand continues to grow while supplies diminish. The resulting increases in price will throw a wrench into the industrial

economy, including industrial agriculture.⁵ It will necessitate a radical rethinking of the ways we grow and distribute food in industrialized societies.

Centralization as it takes shape in western economies leads to enrichment for a few, and to wage labour for the many. Farmers were one of the most successful groups to resist being led into wage labour, in part because food production was one of the last industries to undergo centralization. But those days are over for most farmers. With the increase of corporate and contract farming, something close to wage labour is fast becoming the only viable option for people wanting to enter farming - and for farmers having to give up their family farms.

The political forces behind centralization

It is not only our economic system that leads to centralization – our political system exerts centralizing influences as well. Governments often impose health, safety and environmental regulations on *all* farms, organic as well as conventional, to deal with problems generated by large-scale, chemical-based industrial farms. For example, they have required concrete floors in dairy, beef and poultry farms; expensive safety and ventilation machinery in abattoirs; expensive medical surveillance in breeding operations. These regulations are meant to deal with problems that arise in large-scale operations, and their imposition on all operations regardless of size often means an additional unmanageable expense for small-scale farms.⁶

Governments also exert a centralizing influence on agriculture by offering grants and loans for expansion in farming, but no support to small-scale farms interested only in improving or ecologizing their operations rather than expanding them. In fact, the National Farmers Union has documented explicit statements in the 1969 Federal Task Force on Agriculture welcoming the exodus from farming of those who “fall behind” in “the competitive race” to improve productivity.⁷

Governments further increase centralization by providing research and infrastructure funding to agri-chemical corporations, whose yield-increasing products are affordable only for large-scale or financially advantaged farmers. The process of technology increasing yields, increasing production costs, but decreasing crop prices began with the development of hybrid seeds in the 1930s. It intensified with the development of large-scale oil-fuelled farm machinery in the 1940’s and 50s, intensified further with the introduction of chemical fertilizers and pesticides during that same period, and it is escalating today with the development of genetically engineered seeds.⁸

At every stage, when commodity markets were flooded by these government-supported increases in farm yields, commodity prices plummeted, the profit margins for small-scale farms plummeted, and thousands of rural citizens were forced to move to cities, often to retraining programs for jobs that didn’t exist.⁹ This occurred in the U.S. as well, as Wendell Berry describes:

Since World War II, the governing agricultural doctrine in government offices, universities, and corporations has been that ‘there are too many people on the farm.’ This idea has supported, if indeed it has not caused, one of the most consequential migrations of history: millions of rural people moving from country to city in a stream that has not

slackened from the war's end until now. And the strongest force behind this migration, then as now, has been economic ruin on the farm [Berry 1990].

This technologically-induced centralization of farming had further consequences. In order to bring their investment in farm machinery and synthetic inputs to full advantage,

... farmers were impelled to plant larger and larger expanses of machine-friendly monocultures, and to homogenize their farmland by cutting down trees, ripping up hedgerows, bulldozing rock outcroppings, and ignoring the specific characteristics of each field. In other words, farms were shaped to fit the technology.

... Farmers who traditionally saved seed from one year's crop to plant the next, who used farm-produced manure to maintain the fertility of their fields, and who relied on companion planting, rotations and biological controls to limit weed and pest damage, instead began using increasing amounts of purchased inputs [Norberg-Hodge et al., pp.6].

As Norberg-Hodge et al. note, this shift led to "long-term deterioration in the quality of farmland," chemical residues in the environment, and a steady increase in the costs of farming, even as commodity prices dropped.

Why would governments want to play into centralization and speed up the attrition of farmers? Many government officials probably had the sincere though unjustified belief that people earning low incomes on farms would be better off working in cities. Given the steady decrease in farm populations and the increasing tendency of voters to elect representatives with business expertise, this belief was probably accompanied with a heavy load of urban bias – a failure to understand the importance, complexity and cultural life of agriculture and other resource-based industries.¹⁰

But the core reason why governments were so congenial to centralization in agriculture is because it led to increased tax revenues without raising taxes. Large, capital-intensive farms bring in more sales tax through their purchase of land, machinery, inputs, etc. Enterprises making higher profits bring in more business tax. Etc. But bigger operations need the land of smaller operations to become bigger. Centralization makes this possible.

The importance of social (re-)organization

These problems of centralization were able to take hold and grow because of the inability of ordinary people - now and historically - to organize themselves in community and economic structures that work to their advantage. In the absence of such grassroots social organization, the merchant class organized people in ways that worked to *its* advantage.

This occurred historically in the formation of merchant guilds designed to supply merchants with a steady supply of low-cost craft products to sell. It is occurring today in the high yields (read: low prices) for farm commodities brought about by farmers' participation in yield-increasing technologies sold by chemical corporations. It occurs at its most ironic pitch in the absorption into those corporations - or into regulatory agencies - of young people who grew up

on farms that are no longer viable, and who have no where else to go to make use of the love and knowledge of farming they inherited.

Coming up with a solution to the problem of organic agriculture's fossil fuel dependence will clearly not touch these more structural problems – they are built into agriculture because they are built into our political and economic system. Centralization is already occurring in organic agriculture -- small-scale organic farms are already excluded from local markets that are served instead by large-scale corporate organics. Canadian consumers buy 80% of their organic food from the U.S., primarily from industrialized organic farms in California, which is on average 3000 kilometres away, and think they are making ecological food choices. The odds that centralization will only intensify in organic agriculture are high.

In the face of such powerful and entrenched structures as the prevailing economic system, what kind of social re-organization is possible to deal with these problems? What can ordinary people do to decentralize agriculture? Is it possible to save small-scale farming?¹¹

Building sustainable communities

We would not have decided to write this paper if it were only to deliver a depressing analysis. We decided to write it because we think there is something that ordinary people can do to solve the momentous problems of climate change, peak oil, and their ultimate source -- the inequality and exploitation built into our economic system.

While nation states struggle to decide what feeble changes they can make without disrupting their economies, hoping, along with ordinary people, for the discovery of some miraculous new technology, like nuclear fusion, to take the problem away, we are going to describe a much different solution that requires no new technology.

This solution is for the most part based on a change in our political and economic philosophy and a change in our expectations for our lives. If you want to significantly change your society for the better and without coercion, you first have to change your society's dream. The so-called "American dream", born in the post-war era, involved a small house, a yard, a car, a fridge and stove, a radio, a TV, a chicken every Sunday and a college education for the kids. Today, it has spread around the world and inflated. It now involves a house as big as a castle, gas-guzzling vehicles (two), motorized or computerized gadgetry for every conceivable task, a life filled with electronic entertainment, and annual vacations to far-away places rationalized as "ecotourism" despite the fossil fuel energy they consume. And while most of us realize we will never achieve this "dream" by hard work, the dream is kept alive and exploited by our governments in the form of weekly lotteries.

We hope to replace that dream of fabulous wealth and miraculous technologies with a dream of small communities of people working toward regional self-reliance in a political and economic system based on *equality* and *commonwealth*. By *commonwealth*, we mean the common tending and use of a community's land and resources by the people who live in the community. *Stewardship* replaces *ownership* -- though of course the community as a whole would need to have legal title to the land in the larger context of the surrounding nation-state.

In the present neo-conservative global free market atmosphere, governments have abdicated economic decision-making to the multi-national corporations. But 70 years ago, during the Great Depression, the corporate and financial sector handed over the reins of the economy to the government in order to prevent the total collapse of capitalism. Now, in their diminished role which they seem to regard as “growing the economy,” protecting private property, and promoting the interests of the merchant class, the government has given the reins back.¹² We do not expect to see them take a leading role in solving the immense problems we will face in the near future, just as they have not played an instrumental role in solving the problems of poverty, environmental degradation and social hierarchy, nor the many problems in agriculture, such as the attrition of farmers, soil erosion, and chemical dependency.

We humans have a tremendous capacity for denial. There are a number of “elephants” in our collective living room that many people don’t want to talk or think about. But if it is the case that we are destroying our ecological systems, then we must talk and think about them if we are going to solve these problems.

We have a chance to finally get it right – to finally change our lives to where we are living sustainably. We can’t do it alone. Rugged individualism isn’t what is called for here. We need to relearn how to cooperate. We need to relearn the potential of community. In the western world, it got lost during the enclosure movement during a period of four hundred years or so.¹³ We don’t have that long to relearn it, and we will only relearn it by doing it. It isn’t the sort of knowledge you learn in a classroom.

The *design* of the communities we live in is a crucial part of the discussions we need to have. Why is it that *design* is considered very important in every aspect of our lives -- in our homes, our tools, etc. -- but *communities* are just supposed to happen? We think that both the physical design and the political and economic design of human communities are essential parts of the solution. When human settlements are left to grow on their own, as is generally the case, then, as Dewey noted regarding ideas about values in general:

If intelligent method is lacking, [then] prejudice, the pressure of immediate circumstance, self-interest and class interest, traditional customs, and institutions of accidental origin are *not* lacking, and they tend to take the place of intelligence (Dewey p.299).

When the physical and structural conditions of a society allow for inequality to grow, it will. “If you want equality at the end of the day, you have to build it in at the beginning.”¹⁴ If a community is intelligently designed, it has a better chance of building in conditions that foster equality. Equality doesn’t mean that everyone is the same. It means that their differences don’t translate into social hierarchy and exploitation. When managerial workers make 10 or 100 times the income that “manual” workers make, we have inequality. Even to have the work in a society *divided* into managerial and manual categories, done by separate individuals, is to have inequality. The resultant gap between rich and poor is part of what drives our inflation of the “dream” – and our consumption levels.

A model of a sustainable community

The model of a community on the following page is a design that Gary has been pondering for many years (while out working in his fields). The first thing you might notice is that it is circular. This is not an essential quality; it is simply more efficient in terms of access. It is also symbolic of equality and community, both of which are essential. The reason our towns and cities are laid out as squares and rectangles is because land is considered a commodity to be parceled out and bought and sold. It is easier to survey straight lines rather than curves.

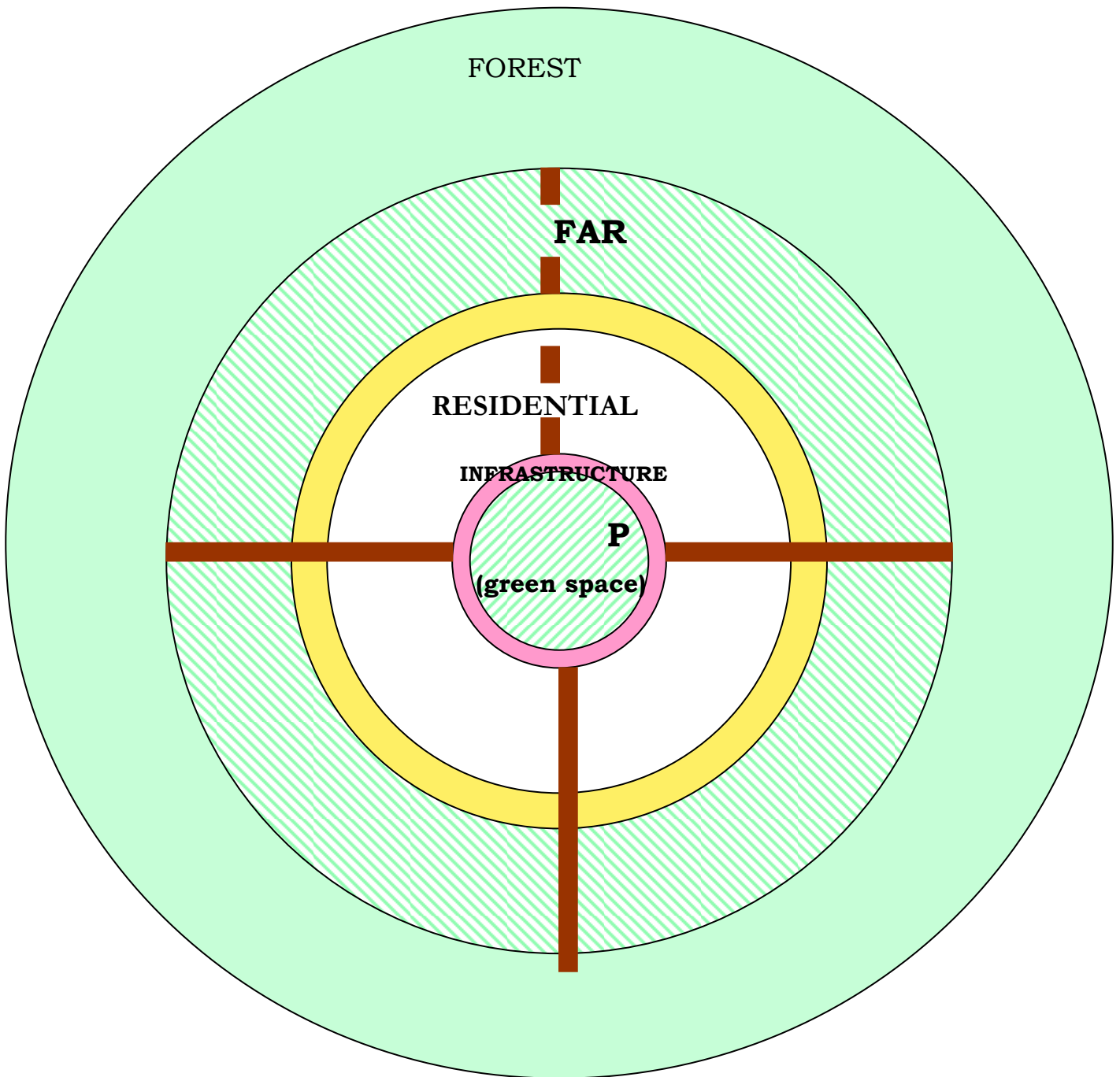
These communities are “intentional” because we don’t believe a great deal of community happens unintentionally. We will have to learn a great deal about living as equals and living communally. Actually we have a great deal to learn about living period if we were to live in this simpler way. But it would be exciting.

These communities are designed for a specific size and population. They are not meant to expand. The question of scale is an important issue that is rarely addressed in present day society except to point out the advantages of “economies of scale” -- by which is meant that bigger is better. These communities are designed for populations of roughly 5,000 people, although smaller experiments might be tried at first to see (hence find ways to avoid) the problems that might arise in practice.

As for the amount of land necessary to sustain a community of 5,000 people, there is no formula to help ascertain. This circular model we have drawn has an area of just under 20,000 acres. Another important feature is that this community is walkable. In the idealized model we have drawn, it is about 3 miles from the centre of the park to the outer edge of the forest, and no more than 2 miles from the centre of the park to the farmhouses. Cars are restricted to selected areas and uses. Currently, transportation accounts for 36% of Canadian greenhouse gas emissions,¹⁵ and cars (with maintenance, insurance, etc.) suck up 30% of the income of most families. Even if cars are electric, they still require a great deal of energy to build and to run. It is better to build communities that don’t need them.

If such a community were to be established, the land would have to be bought at the outset then put into a land trust. At that point, the land and the resources within this community cease to be commodities. They cease to be “owned,” and are instead recognized as commonwealth. Stewardship replaces ownership.

An Idealized Model of a Sustainable Community



The pink ring contains the infrastructure that any town needs, including stores, hospital, library, secondary schools. Food stores and elementary schools would be located in the residential areas. The aim is walkability.

The chart of contrasts on the pages following is meant to be an abbreviated and hopefully clear way of explaining many of the principles that would be essential to the working of this community. It would take a good many pages to write these ideas out. We hope the chart gives you a sense of what it would be like to live in one of these communities.

Alternative communities have been attempted throughout the history of industrialization, particularly in the first half of the 19th century. The experiment that stands out is Robert Owen's. Owen was a Scottish industrialist who started what he called "a village of co-operation" at New Harmony, Indiana in 1825. It eventually failed, due in part to the fact that the people who did the manual work felt that the people who did the intellectual work were given a privileged status.

We are not so naïve as to think that building such communities will be easy or that it will happen any time soon. Many people concerned with the problems of globalization, climate change and rural decline put their hope instead in the rebuilding of existing communities through the building up of "the civil commons" within them – for example, "public education, universal health care, parks, environmental legislation, health and safety regulation, public broadcasting" -- against the forces of globalization that erode them.¹⁶

In any case, we believe it is crucial for people to start thinking about and imagining alternative possibilities to our present arrangement of living in a competitive, consumptuous, hierarchical society. We hope that the principles we have articulated here give a vision of one such alternative possibility. Sustainability, which presently is no more than a buzz word, is in actuality about the very survival of the human species.

CONTRASTS

GLOBAL CORPORATE CAPITALISM

SUSTAINABLE COMMUNITIES

ECONOMY

PRIVATE ENTERPRISE
"GO IT ALONE" INDIVIDUALISM
BASED ON CONSUMPTION
ADVERTISING UBIQUITOUS
CREATES WANTS
EXPANSIONIST
EXPORT ORIENTED
CARS - hub of economy
GLOBALLY DEPENDENT
HIERARCHICAL, wages & classes
REPRESENTATIVE DEMOCRACY
(PLUTOCRACY)
STATE OF THE ART TECHNOLOGY
"BIGGER IS BETTER"
LAND IS A COMMODITY
WATER "
GENES "
IDEAS "
LABOUR "
SOME UNEMPLOYMENT NEEDED
RURAL MIGRATION INTO CITIES

COOPERATIVE ENTERPRISE
"IN IT TOGETHER" COMMUNITY
VOLUNTARY SIMPLICITY
ADVERTISING UNNECESSARY
FOCUSES ON NEEDS
STATIONARY
LOCAL ECONOMY, surplus exported
CARS ARE RESTRICTED
SELF-RELIANT
EGALITARIAN
PARTICIPATORY DEMOCRACY

APPROPRIATE TECHNOLOGY
"SMALL IS BEAUTIFUL"
LAND IS COMMONWEALTH
WATER "
GENES "
IDEAS "
LABOUR "
FULL EMPLOYMENT
RURAL REJUVENATION

DESIGN OF CITIES & TOWNS

SQUARE
SPRAWLING
UNLIMITED SCALE
EXPANSIONIST
CAR IS DOMINANT
SUBURBIA
BUILDINGS FACE ROAD
"SKY'S THE LIMIT"

DESIGN OF COMMUNITY

CIRCULAR, preferably
CONCENTRATED
OPTIMAL SCALE, 5,000 +/- ? people
STATIONARY
CARS RESTRICTED, CAR-FREE CORE
SUBURBIA UNNECESSARY
BUILDINGS FACE SUN
LIMITS (e.g., 3 STOREYS)

ENERGY

MOSTLY FOSSIL FUELED

MOSTLY PRIVATELY OWNED

**RENEWABLE - sun, wind, water,
wood, human, animal
COMMUNITY-OWNED
WIND GENERATION**

AGRICULTURE

**FAMILY or CORPORATE OWNED
FARMERS ARE BUSINESS PEOPLE
FARMERS PAID BY THE TON
FARMERS PURCHASE EQUIPMENT
FARMERS BUILD INFRASTRUCTURE
FARMERS HIRE HELP
EXPORT ORIENTED**

CHEMICAL AGRICULTURE

- NITROGEN MADE FROM FOSSIL FUELS
- GMOs CONSIDERED ESSENTIAL
- ANIMAL MANURE SPREAD RAW
- FOCUS ON NPK

FEEDLOTS (BEEF FACTORIES)

INDUSTRIAL (E.G. PORK FACTORIES)

UNLIMITED SCALE

FARMLAND CAN BE DEVELOPED

FARMERS CAN LOSE FARM

**FAMILY or COOPERATIVELY RUN
FARMERS ARE STEWARDS
FARMERS PAID FOR THEIR EFFORT
COMMUNITY SUPPLIES EQUIPMENT
COMMUNITY BUILDS IT
COMMUNITY PROVIDES HELP
INTEGRATED INTO COMMUNITY**

BIOLOGICAL AGRICULTURAL

- NITROGEN TAKEN FROM ATMOSPHERE
- GMO AND PESTICIDE FREE ZONE
- MANURE COMPOSTED
- FOCUS ON SOIL AS LIVING PROCESS

NO FEEDLOTS

FARMS DON'T TRY TO BE FACTORIES

10 - 120 ACRES

FARMLAND IS PERMANENT

FARMERS CANNOT LOSE FARM

FORESTRY

**PRIVATE ENTERPRISE
SINGLE SPECIES PLANTATIONS
CLEARCUT HARVESTING
EXPORT ORIENTED**

**INTEGRATED INTO COMMUNITY
MIXED SPECIES, UNEVEN AGE
STRIP, PATCH, OR SELECTIVE
PRIMARILY LOCAL CONSUMPTION**

INDUSTRY

**EXPORT ORIENTED
FOCUS ON WANTS
FOSSIL FUEL DEPENDENT
CENTRALIZED**

**PRIMARILY LOCAL CONSUMPTION
FOCUS ON NEEDS
RENEWABLE RESOURCE RELIANT
DECENTRALIZED**

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Endnotes

¹ Some readers might criticize our decision to distinguish the concept of ‘sustainability’ into its biological, social and economic aspects, because the term ‘sustainability’ emerged out of recognition of the essential interdependence of these three spheres, and the insolubility of environmental problems until all three aspects are given full and integrated consideration. Our view is that while in certain respects this conceptual development marked a great increase in environmental understanding and was in many quarters sound and noble in intention, it has ended up paving the way for environmental discourse to be co-opted by corporations and governments more concerned with short-term economic gain. “Sustainability” became a way to change the conversation when corporations became worried that environmental concern had gained too much legitimacy in the public mind. Its popularity today has made environmental concern illegitimate unless it is tied to economic concern. This would be fine if the economic concern involved were long-term in range and egalitarian in focus. But instead, ‘sustainability’ has become subordinated to the economic focus most prevalent in corporate and government thinking; namely, the almost inevitable short-term *corporate* thinking of “expand-profits-to-hold-and-attract-investors,” and the almost inevitable short-term *government* thinking of “encourage-big-spending-to-increase-tax-revenues-to-present-a-balanced-budget-to-voters”.

² See, e.g., Clausheide and Courtenay-Hall 2006, Jackson 1985, Laing 2002. The need for more research in this area is pressing – and not well supported by existing research funding patterns, which rely on corporate contributions motivated by the possibility of profit from the processes or technologies developed in the research.

³ Peak oil is the hypothesis that world oil production is soon to reach its peak, if it hasn’t already, and that the consequent rising price of oil will bring serious disruption to western economies based as they are on the assumption of cheap and plentiful oil supplies. It was first articulated by Marion King Hubbert in the 1950s, who predicted that oil production in the U.S. would peak between 1966 and 1972. He turned out to be right; it peaked in 1971. See Heinberg 2003.

⁴ See, e.g., Heinberg 2003, Pollan 2007.

⁵ Heinberg 2003.

⁶ Several of these problems are discussed in NFU 2003, Pollan 2007 and Winston 2002.

⁷ NFU 2003, pp.2-3.

⁸ Discussed in Winston 2002 and Norberg-Hodge *et al.* 2002.

⁹ NFU 2003, Norberg-Hodge *et al.* 2002, Winson 1992, and Winston 2002.

¹⁰ We discuss the problem of urban bias in Courtenay-Hall and Clausheide 2008.

¹¹ Some definition of small-scale agriculture might be important to avoid widely divergent interpretations. We have in mind a maximum of 100 acres of cropped land. What’s especially important is the preservation of hedgerows, diversified planting, and a farmer’s close knowledge of her land.

¹² The dynamics of globalization are discussed in Nader and Wallach 1996 and Sumner 2005, chapters 1 and 2.

¹³ Kropotkin 1955 (1902).

¹⁴ Source unknown to us.

¹⁵ Natural Resources Canada 2005.

¹⁶ Sumner 2005, p.12. (See chapter 6.)