



Chapter 1

The Context for Sustainable Communities

In communities in North America and around the world, citizens and their governments are embracing sustainability, not as an after-thought tacked onto official community plans, but as a new way of thinking about their future. Motivations vary, but include a desire to secure the means to survival, improve the quality of community life, protect the environment and make inclusive and participatory decisions. As well, they reflect concern about our fellow citizens' well-being, longing for a sense of satisfaction that money can't buy and pride in the legacy we leave for the future. Together, they have created a movement that is inevitable and unstoppable.

As this book demonstrates, this movement toward sustainability is no guarantee that we will achieve sustainability; several indicators show that we are losing ground and that the outcome is certainly not inevitable. However, sustainability can deliver on these hopes. It promises to help us create communities that are cleaner, healthier and less expensive; enjoy

greater accessibility and cohesion; and be more self-reliant and secure in energy, food and economic resources. Sustainable communities are not merely about “sustaining” the quality of our lives — they are about *improving* it.

This chapter introduces the context for sustainable communities, starting with an examination of the global context, concept and history of sustainable development. From there we explore the concept of community capital as a framework for making sustainable development real in our communities. This community capital framework binds together the many topics presented in this book into a cohesive whole, and underlies all the subsequent chapters. The chapter culminates by explaining that this book is not about stopping development; rather, it is about doing development differently. Finally, it concludes with an outline of the subsequent chapters.

Thinking Globally

On October 31, 2011, the human population

reached 7 billion. The United Nations projects that global population will peak at 9.3 billion in 2050 (UNFPA 2011). Our growing numbers will challenge all nations in terms of food production, the availability of land for human use and the ecological integrity of the land left undeveloped. Scholars have long warned us about the possible implications. Almost 200 years ago, English economist Thomas Malthus argued that all populations will succumb to famine and disease as a result of unabated growth. In their 1972 classic *Limits to Growth*, Meadows et al. pointed out that while populations grew exponentially, the technology to increase the availability of resources only grows linearly. More recently, Diamond (2005) demonstrated that population pressures in combination with

fragile ecosystems and myopic political institutions have led many civilizations to collapse.

People around the world are starting to consider that the population problem in the South is less significant a problem than overconsumption and wasted resources in the North. The impact on our environment is affected not only by the population, but by the level of consumption or affluence and the technology available. Resource consumption varies greatly across all countries and income levels: in 2005, 76.6 percent of the world's resources were consumed by the wealthiest 20 percent of the global population, and the poorest 20 percent consumed just 1.5 percent of the resources (World Bank 2008). The effect on the environment of this wealthiest fifth is similarly

One-Planet Living

By Jennie Moore

One-planet living is living within the means of nature. Specifically, it refers to a lifestyle that does not demand more ecological goods and services (i.e., biocapacity or natural capital) than the Earth's ecosystems can sustain on a global annual basis. A more precise term is one-Earth living since there are many planets, but only one Earth that is capable of supporting life as we know it. One-planet or one-Earth living relies on the ecological footprint (footprintnetwork.org) to measure how much global average biocapacity is required to supply the resources and to assimilate the wastes associated with a given population's average lifestyle. The World Wide Fund for Nature (2010) has calculated that for the global population to live sustainably within the ecological carrying capacity of Earth, the share of average biologically productive land and water that could be utilized by each individual is less than two hectares. In reality, however, there is extreme inequity in the distribution

of Earth's resources. For example, if everyone lived the way that an average North American does, close to eight global hectares per capita, we would need at least four and half Earth-like planets (WWF et al. 2010). If everyone lived the way that an average African does, at just over one global hectare per capita, we could live sustainably on our one and only Earth (WWF et al. 2010).

Various initiatives are underway to explore what one-planet living entails in different places around the world. Perhaps the most famous example is the Beddington Zero Energy Development (BedZed) that follows the One Planet Living framework developed by BioRegional, a not-for-profit social enterprise (bio-regional.com). Situated near London, England, some residents at BedZed are demonstrating that changes in lifestyle, particularly to reduce reliance on fossil fuels, can bring one-planet living within reach.

disproportionate: it contributed 40 percent of the global carbon emissions in 2006 (World Watch Institute 2008). Viewed through the lens of per capita resource consumption, the population question takes on new dimensions: a woman in India would need to have ten children to match the resources consumed by one American child (WWF et al. 2010).

Bringing the developing nations up to North American living standards would require a five- to ten-fold increase in world industrial output (WCED 1987), yet the contingent combination of depleted resource stocks (e.g., fossil fuels, fisheries, forests) with degraded life-support systems (e.g., ozone depletion, global warming, acid rain) demonstrates the impossibility of the entire world consuming and polluting at the rate of North Americans. This challenge may be beyond nature's capacity, and therefore, beyond our capability (World Watch Institute 2011).

Ecological Footprint

One way to consider human impact on natural resources and ecosystems is to consider our ecological footprint: the land area and related natural capital on which we draw to sustain our population and production structure (Wackernagel and Rees 1996; WWF et al. 2010).

Natural capital refers to any stock of natural assets that yields a flow of valuable goods and services into the future. Natural capital includes non-renewable resources such as fossil fuels and minerals, renewable resources that can provide goods and services (such as food, clean water and energy) in perpetuity if managed sustainably, and the capacity of natural systems to continue providing critical goods and services while absorbing our pollutants and emissions (such as the atmosphere's capacity to regulate the planet's climate).

The ecological footprint tool that Wackernagel and Rees developed compares human demand for resources to the renewable resources available on Earth. It estimates the global hectares (gha) required for human demand by adding up all of the area required to provide these renewable resources, the area of built infrastructure, and the area needed to absorb waste. Although the tool cannot measure everything, its most recent iteration measured crops, fish, timber, grass for livestock and carbon dioxide emissions. The Earth's biocapacity, which represents the renewable resources available for consumption, is also measured in global hectares that represent an average of bio-productive capacity for all land types (WWF et al. 2010).

Citizens of the United States and Canada have ecological footprints that are among the world's top ten: while the global average is just 3 gha, they consume about 8 and 7 gha per capita annually (WWF et al. 2010). The United Arab Emirates and Qatar top the list with 10 gha per person.

Scholars also estimate that, in the 1970s, humanity entered a state known as *ecological overshoot* (WWF et al. 2010): that is, we began producing more resources than ecosystems can regenerate. The WWF's *Living Planet Report* (2010) calculated that it would take 1.5 years to regenerate the resources used in 2007 alone. How is this possible? These numbers were calculated looking at the newly regenerated portion of the resource, which is conceived of as *resource interest*. When our use exceeds this interest, we are drawing down our natural capital and entering a state of overshoot; in ecological footprint terms, we are then appropriating carrying capacity from "distant elsewhere" (Wackernagel & Rees 1996).

And there is the reality of climate change. Humans are producing far more greenhouse gases than our ecosystems can absorb. In fact, the increase in carbon emissions alone is one of the largest changes in the composition of our footprint since it was calculated by *Living Planet Report* in 1998. In just one decade, carbon emissions, as a portion of the ecological footprint, have increased by 35 percent. Today they account for more than half of the global ecological footprint (WWF et al. 2010).

Ecological footprint analysis confirms that we need to minimize consumption of essential natural capital. But how do we do this in the face of such daunting challenges while maintaining or improving quality of life? The answer, of course, is in planning for development that is sustainable.

Sustainable Development

In December 1983, in response to a United Nations General Assembly resolution, the UN Secretary-General appointed Gro Harlem Brundtland of Norway to chair the independent World Commission on Environment and Development. In April 1987, the Commission released its much-heralded report, *Our Common Future*. The Brundtland Report (as it is often known) showed that the poorest fifth of the world's population has less than 2 percent of the world's economic product while

the richest fifth has 75 percent; and that the 26 percent of the world's population living in developed countries consumes between 80 and 86 percent of non-renewable resources and 34 percent to 53 percent of food products (WCED 1987). The report emphasized the principle and imperative of *sustainable development*, which it defined as “meeting the needs of the present without compromising the ability of future generations to meet their own needs,” and endowed the concept that had been refined for years with new political credibility.

The term *sustainable development* has been criticized as ambiguous and open to contradictory interpretations. Confusion results when it is conflated with *sustainable growth*, an oxymoron as nothing physical can grow indefinitely. While increases in population, production and size are aptly described as growth, qualitative changes, such as improvements in health care, knowledge, quality of life, walkability, density and efficient resource use, are more accurately described as “development.”

Sustainable development has also been used to connote *sustainable use*, which can only relate to use of renewable resources that is within their capacity for renewal (IUCN 1991). As well, the term is sometimes confused with protection of the environment, or even sustained *economic growth* (presumably to pay for, among other things, protection of the environment). But the very concept of environmental protection is based on the separation of humanity from nature. As a society, we point to a few things we think of as nature — some trees here, a pond there — draw a box around them, then try to “protect” what's within the box. In so doing, we risk ignoring the fact that human activity outside that box — housing, economic development, transportation and so on — has a far

There are many ways to define sustainability. The simplest definition is: A sustainable society is one that can persist over generations, one that is farseeing enough, flexible enough, and wise enough not to undermine either its physical or its social systems of support.

— Donella Meadows, Dennis Meadows
and Jorgen Randers, *Beyond the Limits* (1992)

National Governments Recognize Sustainable Communities

In a marked shift since the 2005 edition of this book, in 2009 the US Environmental Protection Agency (EPA) joined with the US Department of Housing and Urban Development (HUD) and the US Department of Transportation (DOT) in a “Partnership for Sustainable Communities.” The partnership aims to help improve access to affordable housing, more transportation options and lower transportation costs while protecting the environment in communities throughout the US (EPA 2011a). The partnership is managed by the EPA’s Office of Sustainable Communities to address the Agency’s priorities for water,

air and the cleaning up of communities and substantially furthers the Administration’s objectives with respect to environmental justice (EPA 2011b).

The Government of Canada also launched a Sustainable Communities Initiative in 2009, funded through Canada Mortgage and Housing Corporation’s housing research fund. The EQUilibrium™ Communities Initiative is intended to provide financial, technical and promotional assistance to six neighborhood development projects across the country chosen through a national competition (CMHC 2009).

greater impact on the environment than do our so-called environmental policies.

Finally, sustainable development is too often misconceived as a trade-off between the environment and the economy. In fact, protecting ecosystems and developing sustainably needn’t mean job loss or economic downturn. It’s about a new way of thinking about economic development over the long term, and a more accurate valuation of ecosystem components in production (Sachs 2008).

If sustainable development is not sustaining growth, protecting the natural environment or making trade-offs, then what is it? The term *sustainable* implies a constant, or the ability of a system to maintain, uphold or preserve its functions. But when used in the context of sustainable development or sustainability, it cannot simply mean to maintain the system we currently have — because this implies that our current system is functioning well now. Sustainability requires changes and improvements to ensure that future generations will have access to the same environmental

benefits that current generations have enjoyed. Sustainable development, therefore, is about changing communities in qualitative ways to a level that is optimal to sustain our existence on the planet. Thus, sustainable development, as it is understood and defined in this book, is not just about “protecting” the environment or maintaining what we have today.

Sustainable development requires fundamental economic and social change to improve human well-being while reducing the need for environmental protection. In sum, sustainable development must be a different kind of development. It must be a proactive strategy to develop sustainability.

Three Core Elements of Sustainable Development

Sustainability has three critical components: the environment, the economy and society. Social equity demands that we balance the needs of the biosphere with the needs of the vast majority of the human population, the world’s poor. This means we can no longer rely on our 200-year tradition of material growth

Towards a More “Just” Sustainability

By Julian Agyeman

In recent years, it has become increasingly apparent that *environmental quality* is inextricably linked to, and inseparable from, *human equality*. From local to global, wherever environmental despoliation and degradation are happening, it is almost always linked to questions of social justice, equity, rights and people’s quality of life in its widest sense.

Globally, Wilkinson and Pickett (2009) showed that greater inequality within countries drives up what they call “competitive consumption” as people try to keep up with the Joneses. This increases carbon emissions. Similarly, it has been shown by Torras and Boyce (1998) that countries with a more equal income distribution, greater civil liberties and political rights and higher literacy levels (such as Sweden, Denmark, Norway and Finland) tend to have higher environmental quality (measured in lower concentrations of air and water pollutants, and access to clean water and sanitation) than those with less equal income distributions, fewer rights and civil liberties and lower levels of literacy.

In a survey of the 50 US states, Boyce et al. (1999) found that states (predominantly southern) with greater inequalities in power distribution (measured by voter participation, tax fairness, Medicaid access and educational attainment levels) had less stringent environmental policies, greater levels of environmental stress and higher rates of infant mortality and premature deaths. At an even more local level, a study by Morello-Frosch (1997) of counties in California showed that counties that were highly segregated in terms of income, class and race had higher levels of hazardous air pollutants.

The message seems to be loud and clear: From global to local, human inequality is bad for environmental quality.

The concept of *just sustainability* bridges this environmental quality–human equality divide, which is

ignored in much of the current *environmentally focused* sustainability debate. *Just sustainability* is “the need to ensure a better quality of life for all, now and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems” (Agyeman et al. 2003, 5).

Just sustainability foregrounds four related focal areas of concern:

- Quality of life,
- Present *and* future generations,
- Justice and equity and
- Living within ecosystem limits.

If sustainability is to become a process with the power to *transform*, as opposed to its current environmental, stewardship or *reform* focus, justice and equity issues need to be incorporated into its very core. Our present “green” or “environmental” orientation of sustainability is basically about tweaking our existing policies. Transformative or *just* sustainability implies a paradigm shift, which in turn requires that sustainability takes on a redistributive function. To do this, justice and equity must move center stage in sustainability discourses, if we are to have any chance of more sustainable communities.

In summary:

Sustainability . . . cannot be simply a “green,” or “environmental” concern, important though “environmental” aspects of sustainability are. A truly sustainable society is one where wider questions of social needs and welfare, and economic opportunity are integrally related to environmental limits imposed by supporting ecosystems (Agyeman et al. 2002, 78).

as the primary instrument of social policy. We all agree with the ideal of sustainable development, like other political objectives of its kind (e.g., justice, democracy), and disagree over what it entails. Nevertheless, sustainable development has a core meaning that remains, however it is interpreted. Three core elements of sustainable development are:

- *Environmental considerations must be entrenched in, and constrain, economic policy-making.* Environmental and economic objectives must be placed within a common framework that allows recognition of parallel objectives.
- *Sustainable development requires a commitment to social equity.* This includes not just creation of wealth and the conservation of resources, but also their fair distribution among and within nations, including at least some measure of redistribution between developed and developing nations. Social equity also requires the fair distribution of environmental benefits and costs between generations.
- *“Development” does not simply mean “growth,”* as measured by indicators of economic performance such as gross national product (GNP) that cannot distinguish between positive and negative outcomes resulting from economic transactions. Development implies qualitative as well as quantitative improvement.

Strong or Weak Sustainability?

In the early 1990s, economists such as Herman Daly and David Pearce considered how to conceive of sustainability in economic terms. They asked what it would mean for each generation to leave a stock of assets at least as great as that

which they had inherited themselves. There are two possible ways to interpret this: “weak sustainability” and “strong sustainability.” Weak sustainability implicitly aggregates all types of assets, reflecting the neoclassical economics assumption that non-natural assets can substitute for natural assets, and would not see it as problematic if natural assets were used up as long as the profits they generate provide an equivalent endowment to the next generation. In contrast, strong sustainability recognizes that, in most cases, non-natural assets cannot be substituted for natural assets, because irreversible processes (such as species extinction or ecosystem destruction) mean that the former cannot be converted back into the latter.

Based on these considerations, Daly, Pearce, Robert Costanza and others began to distinguish between weak and strong sustainability, insisting that we must differentiate between assets that are natural and those that are not (Costanza 2003). Strong sustainability, they argued, recognizes that whatever the level of human-made assets, an adequate stock of natural

Pricing the Planet

A team of 13 ecologists, economists and geographers estimated the present global value of 17 ecosystem “services” is US\$16 trillion to \$54 trillion a year, with a likely figure of at least \$33 trillion. Ecosystem services are services essential to the human economy, including climate regulation, water supply, soil formation, pollination, food production, raw materials, genetic resources, recreation and culture. To come up with the figure, the team estimated the cost of replacing — if that were possible — the ecosystem services of the natural environment. In comparison, the gross national product of the world, which is all the goods and services produced by people each year, was about \$18 trillion (Costanza et al. 1997).

assets is critical in securing sustainability (Daly 1989; Ekins et al. 2003). All this suggests that weak sustainability is grossly insufficient; natural capital stock should only be destroyed if the benefits of doing so are very large or if the social costs of conservation are unacceptably large (Neumayer 2010). It also begs a key question: Are we even capable of knowing the full costs and benefits of destroying or conserving natural capital stock?

The debate between strong and weak sustainability heightened awareness of the field of ecological economics. Ecological economics aims to address the interdependence and co-evolution of human economies and natural ecosystems. It differs from environmental economics, the mainstream economic analysis of the environment, by virtue of its treatment of the economy as a subsystem of the ecosystem and its emphasis upon preserving natural capital. Its adherents argue that strong sustainability is the way forward, and that natural capital cannot be simply conceptualized as an input to the economic system (Neumayer 2010).

Many valuation techniques have been devised to put a value on all of the ecosystem services in the world (see *Pricing the Planet*), and many more ecosystem services have been valued on a smaller scale. But this approach has its critics. They argue that valuing ecosystem services in this way is based on erroneous assumptions that the market is the only system by which to compare welfare and value, that welfare can be accurately represented in monetary terms, that monetary value implies substitutability, and that technology will solve most problems (Chee 2004). Costanza and Folke (1997) also recognized that economic valuation of nature becomes even more difficult when social equity is also a goal of ecosystem

management. Liu et al. (2010) have maintained that affixing a monetary value to ecosystem services is mostly theoretical, and meant to give the world of markets and the world of conservation a common language.

Rees (1991) has argued that, when we consider that the potential benefits of conservation approach infinity, costs become irrelevant. Indeed, the economic benefits of destroying natural capital stock or the social costs of conservation may seem large, but only as a function of our inability to adequately assess such costs and benefits. This suggests that it is time for a different kind of framework for planning and decision-making — one guided by the understanding that natural capital stock should not be destroyed.

Understood in terms of natural capital and natural income, or principal and interest, sustainable development acquires new meaning. The bottom line for sustainability is that we must learn to live on our natural income rather than deplete our natural capital. For example, there are those who cheer the idea that even in the most somber climate change scenarios — which assume runaway population growth, minimal technological advancement and the lowest standard of living — rich countries would grow 1 percent every year and poor countries would grow 2.3 percent. Our great-grandchildren in rich countries would be two-and-a-half times wealthier than we are today; in poor countries, the figure would be a stunning nine times wealthier (Visscher 2011). However, economic growth with an ecological deficit is anti-economic and makes us poorer rather than richer in the long term (Daly & Cobb 1989). Sustainability therefore requires that we minimize our consumption of essential (and especially non-renewable) natural

capital while simultaneously finding ways to close the poverty gap (Porritt 2005).

Resilience and Sustainability

A more recent current of sustainability thought refers to concepts of *resilience*. First introduced to the sustainability literature by the renowned natural scientist C.S. Holling (1973), resilience refers to a system whose state of equilibrium is in fact characterized by thresholds, uncertainty and periods of gradual change interspersed with periods of rapid change. According to Walker et al., resilience is “the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks” (2004, 2). The term *resilience* has been applied to communities to describe a method of dealing with crisis and adapting to change (e.g., Campanella 2006; Comfort et al. 2004). Specific tactics include communication systems for crisis response, working with public-private partnerships and other activities that can diversify risk **across institutions and time** (Campanella 2006; Hultman & Bozmoski 2006; Tobin 1999).

Resilience in community planning is a key driving principle behind the “transition initiative” (formerly the “transition town initiative”). In 2005, Hopkins introduced the term during a community process called the “Energy Descent Action Plan” of the town of Kinsale, Northern Ireland. The process outlined steps the community could take to reduce carbon emissions, prepare for an economy post-peak oil and ultimately transition to more sustainable socio-technical systems (Haxeltine & Seyfang 2009). With climate change and peak oil on the horizon, Hopkins (2008) and others (such as Odum & Odum 2001) had argued that we

will inevitably have to live with a smaller energy footprint, that we should be planning for it collectively, and that our communities currently lack the resilience to survive the shock of skyrocketing energy prices. Towns across the UK, Australia and the United States are now using this framework to plan for sustainability. As of June 2011, there were 360 transition initiatives underway in 34 countries (Transition Network 2011).

While both are moving in the same direction, the concepts of sustainability and resilience are vying for the same definitional space. Where Hopkins has argued that “the concept of resilience goes far beyond the better known concept of sustainability” (2008, 54), most other scholars have used sustainability as the broader concept to encompass all types of transitions and changes (Haxeltine & Seyfang 2009). Much early work on resilience focused on “the capacity to absorb shocks and still maintain function,” but there is another aspect of resilience that “concerns the capacity for renewal, re-organization and development,

Resilience, then, embraces change as the natural state of being on earth. It values adaptation over stasis, diffuse systems over centralized ones, loosely interconnected webs over strict hierarchies. It favours diversity (both biological and social) and redundancy, and it works best with a range of interchangeable, modular components. It places paramount value on natural capital (the trees in the forest, the oil in the ground) and social capital (the hearts and minds and passionate actions of the public). It responds best with tight feedback loops, where, for example, the squandering of that capital has immediate, negative consequences. It encourages learning new tricks and following local rules and customs.

— Turner, 2011, 53

which has been less in focus but is essential for the sustainability discourse ... in a resilient social-ecological system, disturbance has the potential to create opportunity for doing new things, for innovation and for development” (Folke 2006). It is in this respect that resilience supports the normative nature of sustainability by recognizing that a sustainable society is one that is actively seeking to become a better society (e.g., Newman, Beatley & Boyer 2009). Indeed, as Kamp (2011) noted, “the quest for sustainability is the modern variant of the Industrial Revolution, and it offers entire generations the opportunity to do meaningful work and redesign societies.”

Community Capital

Community Capital Framework

There are myriad ways to understand and conceptualize community. The term *community* refers to a group of people bound by geography and with a shared destiny, such as a municipality or a town. The term *North America* in this book refers primarily to communities in the developed countries of North America, in other words, those in the US and Canada. For sustainable community development, it is useful to think of community in terms of so-called capital, a number or collection of local assets, community resources that can produce other benefits through investment (Flora et al. 2004). The SFU Centre for Sustainable Community Development (e.g., Roseland 1999; 2000) and others (e.g., Emery & Fey 2006) use this notion of community capital as the foundation for sustainable community development. Generally speaking, sustainable community development strategies should favor bottom-up over top-down approaches; redistribution over trickle-down; self-reliance over dependency; a

local rather than a regional, national or international focus; and small-scale projects rather than grand-scale or mega-projects. As well, they should be designed with extensive public participation; seek to improve society and the environment as well as the economy; and result in increased equity, equality and empowerment (Brohman 1996).

Originating from the World Commission on Environment and Development’s definition of sustainable development (see chapter 1), there have been several efforts to describe sustainable community development in terms of three types of capital: economic, social and ecological capital (e.g., Goodland 2002; Rainey et al. 2003). However, from our perspective, working with the three large types of capital is cumbersome and challenging. Therefore, we use six smaller, more nuanced forms of capital: natural, physical, economic, human, social and cultural capital. These six forms of capital are the backbone of the Community Capital Framework (Figure 1), which seeks *balance* between all the capital. In pursuing balanced development, we ask whether each form of capital benefits from a proposed initiative. For example, does the preservation of a natural ecosystem encourage economic development through tourism or will it hurt industry in the area? Can trails be added to a protected area to promote physical health benefits in the community? And can the same protected area be used for education and cultural events?

It is important to understand that an increase in a single capital can generate multiple benefits across the other forms of capital (Gutierrez-Montez 2005). For example, an increase in economic capital through successful community economic development initiatives will create opportunities for more jobs (human

capital) and generate financial resources to maintain and replace aging community infrastructure, such as roads and public buildings (physical capital). If economic development initiatives thoughtfully consider the needs of the community, they will also increase social and cultural capital. This flow of resources across capital has been termed the “upward spiral” of community capital (Emery & Fey 2006; Wheeler 2004). But this same effect can happen as a “downward spiral” too — when one form of capital becomes deeply eroded, then the others will likely decrease.

The Community Capital Framework has been developed to consider the effects of decision-making on each form of community capital. It has been designed with a systems thinking perspective that regards each form of community capital as a sub-system of the larger whole community system. Since the early 2000s, we have used the Community Capital Framework in a variety of community types — big, small, rural, urban, developed, developing — in many areas around the world — North America, Latin America, Eastern Europe — with resounding success. The framework resonates with different communities because it encourages participants to think strategically and holistically with regard to existing capacity, sustainability principles and potential long-term impacts of specific projects, policies and activities.

Six Forms of Community Capital

NATURAL CAPITAL

Although the term *natural capital* has been around for almost a century, it was ecological economists such as Robert Costanza (1989) and Herman Daly (1989) who introduced it into the dialogue around sustainability. Natural capital refers to any stock of natural assets that yields

The fact of the matter is that we depend on ecosystems and the services they provide in order to do what we do: run businesses, build communities, feed our populations and much more. Whether we consider the more obvious, immediately vital examples — the need for soil that can grow food or for clean water to drink — or the less obvious but equally significant things like oxygen production during photosynthesis or waste processing by bacterial decomposers, we cannot avoid the conclusion that we depend on the environment for our existence. If we damage or destroy the capacity of the environment to provide these services we may face consequences for which we are completely unprepared (Strange & Bayley 2008).

a flow of valuable goods and services into the future. Natural capital includes non-renewable resources (such as fossil fuels and minerals), renewable resources that can provide goods and services (such as food, clean water and energy) in perpetuity if managed sustainably and the capacity of natural systems to continue providing critical goods and services while absorbing our pollutants and emissions (such as the atmosphere’s capacity to regulate the planet’s climate). Because the flow of benefits from ecosystems often requires that they function as intact systems, the structure and biodiversity of ecosystems is another important component of natural capital (Goodland 2002; Wackernagel & Rees 1996). As well, irreplaceable areas of outstanding natural beauty are considered natural capital.

Enhancing our natural capital means living within its ecological limits: using less of it, minimizing our waste, leaving more of it untouched and generally ensuring that our actions do not degrade its functional integrity. The benefits that flow from natural capital can be considered *natural income*.

PHYSICAL CAPITAL

Physical capital is the infrastructure that helps people obtain their basic needs, such as shelter, access to clean water, unspoiled food and a supply of energy. It also creates an opportunity for people to be productive by providing stocks of material resources, such as equipment, buildings, machinery and other infrastructure that can be used to produce goods and a flow of future income.

The origin of physical capital is the process of spending time and other resources constructing tools, plants, facilities and other material resources that can, in turn, be used in producing other products (Ostrom 1993). Physical capital is sometimes referred to as produced capital (NRTEE 2003), manufactured capital (Goodland 2002) or public capital (Rainey et al. 2003).

There is a strong relationship between physical and human capital. Insufficient physical capital can limit human capital by requiring more effort needed to satisfy basic needs and achieve productivity. In rural communities challenged by poor sanitation facilities, the time lost when someone becomes sick limits community

members' ability to focus on productive financial gain. This will limit new resources from entering the community.

Improving physical capital includes focusing investment, both financial and non-financial, on community assets such as public facilities (e.g., hospitals and schools); water and sanitation; efficient transportation; safe, quality housing; adequate infrastructure and telecommunications.

ECONOMIC CAPITAL

Economic capital refers to the ways in which we allocate resources and make decisions about our material lives. It is essential for building a stable and viable economy. Economic capital within a community consists of two distinct types of resources, *financial* and *business*. Individuals and organizations use financial resources, such as money and access to affordable loans, to achieve well-being and generate wealth through goods and services production. Business resources, such as locally owned and operated companies, are the suppliers and consumers within a community that generate employment and income. They transform community resources into products and services that encourage the circulation of money within the community.

Economic capital can be maintained and strengthened by supporting economic diversification across sectors and employers, local needs production to reduce economic leakage caused by importing and by supporting local enterprise development through access to loans and credit and technical assistance.

HUMAN CAPITAL

Human capital is the “knowledge, skills, competencies and other attributes embodied in individuals that facilitate the creation of personal, social and economic well-being” (OECD

Understanding Capital

Since the language used to describe community capital is borrowed from the field of economics, economic capital is generally the most easily understood form of capital. Take currency as an example, if the money within a community stays in the bank generating interest, it provides very little benefit for the community. However, if that same money is used to build a community center, it would generate a variety of immediately realized benefits for the community. These benefits can be considered community income (Emery & Fey 2006).

2001). It contributes directly to the labor productivity of a community and is sometimes described as the “livelihood asset,” representing a person’s ability to pursue and achieve individual livelihood objectives (DFID 2003). Such objectives vary from person to person and have a variety of influences, such as culture, income and personal preferences. Health, education, skills, knowledge, leadership and access to services all constitute human capital (Callaghan & Colton 2008).

Human capital is formed consciously through training and education and unconsciously through experience (Ostrom 1993). It needs continual maintenance by investments throughout one’s lifetime (Goodland 2002). It is eroded through the inability of a person to meet basic needs, such as access to food, clothing, shelter and education, as well as failure to achieve expectations in work and productivity (Callaghan & Colton 2008).

Increasing human capital requires a focus on areas such as health, education, nutrition, literacy and family and community cohesion. Increasing it also requires input from other forms of capital — physical (shelter, schools and medical infrastructure), economic (employment and income), social (peace and safety) and cultural (identity and belonging) capital are all needed to enhance human capital (Hancock 2001). It also requires creating opportunities to build pride and freedom through realistic expectations and achievements (Callaghan & Colton 2008).

SOCIAL CAPITAL

Social capital constitutes the “glue” that holds our communities together. It is community cohesion, connectedness, reciprocity, tolerance, compassion, patience, forbearance, fellowship,

love, commonly accepted standards of honesty, discipline and ethics and commonly shared rules, laws and information. It has both an informal aspect related to social networks and a more formal aspect related to institutions and social development programs. The Organisation for Economic Co-operation and Development (2001) defines social capital as “the relationships, networks and norms that facilitate collective action.” Others describe it as the shared knowledge, understandings and patterns of interactions that groups of people bring to any productive activity (Coleman 1990; Putnam 1993).

Social capital differs from other forms of capital in several significant ways. It is not limited by material scarcity, meaning that its creative capacity is limited only by imagination. Consequently, it suggests a route toward sustainability, by replacing the fundamentally illogical model of unlimited growth within a finite world with one that is less constrained by the availability of material resources (Prigogine & Stengers 1984; Tainter 1995). It has two distinct characteristics that make it unique from the other capital: social capital does not wear out upon being used, and if unused, social capital deteriorates at a relatively rapid rate (Ostrom 1993). Social capital also has limitations that other forms of capital do not. It is non-transferable and cannot be created instantly, and the very fact of trying to consciously create it or direct it can create resistance. People resist being instrumentalized for even the best of reasons (Dale & Newman 2010; Flora & Flora 1993).

Multiplying social capital contributes to stronger community fabric, and establishes bonds of information, trust and inter-personal solidarity (Coleman 1990; Jacobs 1961; Lehtonen 2004), whereas a loss, or deficit,

results in high levels of violence and mistrust (Jacobs 1961).

Past sustainable development efforts have focused less on building social capital (and human and cultural capital) than other capital (Lehtonen 2004). Why is that so? A number of studies identify governance structures as the main barrier to social capital development (Dale & Newman 2010). Though social capital is largely neglected in discussions of public policy, Putnam (1993) reasons that social capital substantially enhances returns on investments in physical and human capital. However, unlike conventional capital, social capital is a public good, i.e., it is not the private property of those who benefit from it. Thus, like other public goods, from clean air to safe streets, social capital tends to be under-provided by private agents. The ties, norms and trust that constitute social capital are most often created as a by-product of other social activities and then transferred from one social setting to another (Hayami 2009).

The modern concept of social capital is described as the relations between individuals and groups. It can take several forms, some of which are mutually recognized bonds, channels of information, and norms and sanctions.

In this sense, social capital is related to the concept of social ecology, as developed in the works of the late Murray Bookchin. Social ecology is the study of both human and natural ecosystems, and in particular, of the social relations that effect the relation of society as a whole with nature. Social ecology goes beyond environmentalism, insisting that the issue at hand for humanity is not simply protecting nature but rather creating an ecological society in harmony with nature. The primary social unit of an ecological society is the sustainable community, a human-scale settlement based

on ecological balance, community self-reliance and participatory democracy (Bookchin 1987).

Enhancement of social capital requires communication, interaction and networking between community members (Dale & Newman 2010; Onyx et al. 2004). It requires attention to effective and representative local governance, strong organizations, capacity-building, participatory planning, access to information, and collaboration and partnerships.

CULTURAL CAPITAL

Cultural capital is the product of shared experience through traditions, customs, values, heritage, identity and history. Although sometimes subsumed under the heading of social capital, it deserves its own category.

Cultural capital is the cultural and traditional resources of a community (Flora, Flora & Fey 2004). It is many things, both tangible and intangible: singing, dancing, stories, food, rituals, spirituality, ceremonies, celebrations, heritage buildings and art. Cultural capital defines community, influences decision-making and shapes how people communicate with one another. It is something that a community shares both socially and across generations (Callaghan & Colton 2008). French sociologist Pierre Bourdieu (1986) was the first to describe cultural capital, believing it exists in three different states: embodied (state of the mind/body), objectified (through cultural objects like instruments and costumes) and institutionalized (“rules of the state”).

In mainstream Western society, particularly in the US and Canada, cultural capital is often under-valued. However, it is particularly important in aboriginal communities that use local ecological knowledge to guide resource management and decision-making (Cochrane

2006). Cultural capital also plays a strong role in communities with long histories and traditions.

In communities rich with culture and natural resources, cultural capital has influence over management objectives, efficiency of process and demand for natural resources (Cochrane 2006). When embraced, cultural capital can increase human and social capital by improving health and well-being and promotes stewardship and preservation of natural capital (Cochrane 2006). It can be used to increase economic capital through productivity and tourism opportunities (Flora, Flora & Fey, 2004)

Enhancing cultural capital implies attention to traditions and values, heritage and place, the arts, diversity and social history. It is closely linked to social capital, in that the amount of social capital present in the community will either constrain or promote cultural capital (Callaghan & Colton 2008).

The Foundation for Sustainable Community Development

Strengthening these six forms of community capital is the foundation for sustainable community development (SCD). The key to understanding this approach to development is recognizing that it is based largely on appreciation of community assets (as well as realistic acknowledgement of challenges or, in conventional terms, deficits).

For example, a transportation system that is oriented to walking, cycling and public transportation rather than the private automobile contributes to natural capital by saving energy and reducing emissions. It contributes to human capital by reducing health-damaging air pollution and motor vehicle accidents, and by increasing the amount of exercise people get. It may contribute to social capital by

increasing the social networking required for car-sharing, carpooling and other more social means of getting around, in addition to the social interaction that may occur in the use of public transport. Finally, it contributes to economic capital by reducing congestion and by reducing the costs of transportation if people do not need to own a car or perhaps are only part owners in a car-sharing or carpooling system. This in turn increases disposable income, which may be spent on more health-enhancing products and services (Hancock 2001).

COMMUNITY MOBILIZATION

The Community Capital Framework (Figure 1) conceives of SCD as a balanced enhancement of all of these capital, with a critical element at its center: community mobilization. Why? Because there is no single sustainability prescription that would fit all communities, because every path forward comes with opportunity costs that need to be carefully considered, and because participatory planning is critical to the sustainable development process — from visioning through to evaluation of results. For people to prosper anywhere they must participate as competent citizens in the decisions and processes that affect their lives (Gran 1987). Sustainable community development is thus about the quantity and quality of empowerment and participation of people.

In summary, applying the concept of sustainable development to communities requires mobilizing citizens and their governments to strengthen all forms of community capital. Elements of this framework include minimizing consumption of essential natural capital and improving physical capital, which in turn require the more efficient use of urban space. This sustainability framework also includes

There is no endeavour more noble than the attempt to achieve a collective dream. When a city accepts as a mandate its quality of life; when it respects the people who live in it; when it respects the environment; when it prepares for future generations, the people share the responsibility for that mandate, and this shared cause is the only way to achieve that collective dream.

— Jaime Lerner, former Mayor of Curitiba, Brazil

strengthening economic capital, increasing human capital, multiplying social capital and enhancing cultural capital. Community mobilization is necessary to coordinate, balance and catalyse community capital. The significance of these criteria for the future of our communities and our society is elaborated in the following chapters.

Doing Development Differently

Several key arguments inform this book. First, the term *sustainable development* acquires tangible meaning when understood in terms of natural capital and natural income. The bottom line for sustainability is that we must learn to live on our natural income rather than deplete our natural capital. Economic growth is illusory if accompanied by a growing ecological deficit, since over time it makes us poorer rather than richer (Daly & Cobb 1989). Sustainability therefore requires that we minimize our consumption of essential natural capital.

Second, community capital and social equity demand that North Americans, who are among the world's most inefficient and wasteful consumers of materials and energy (e.g., WCED 1987), find ways of living more lightly on the planet. At a minimum, we will have

to increase the efficiency of our resource and energy use. More likely, we will also have to reduce our present (not to speak of projected) levels of materials and energy consumption.

Third, reducing our materials and energy consumption need not diminish and, in fact, would likely enhance our quality of life and the public domain — in other words, it could strengthen our community capital. It is important to distinguish here between “quality of life” and “standard of living” (Jacobs 1993). Standard of living generally refers to disposable income for things we purchase individually, whereas quality of life can be considered as the sum of all things which people purchase collectively (e.g., the healthcare system, public education, policing), or those things that are not purchased at all (e.g., air quality). Standard of living refers solely to the private domain, whereas quality of life refers to the public domain, the realm of community capital.

Fourth, the critical resource for strengthening community capital is not money — rather, the critical resources are trust, imagination, courage, commitment, the relations between individuals and groups, and time, the literal currency of life. Many of the issues that people relate to most intimately — family, neighborhood, community, decompression from work, recreation, culture, etc. — depend on these resources at least as much as money. This is not to say that economic security isn't important — it is — but focusing solely on money to provide security is using 19th century thinking to address 21st century challenges.

Taken together, the direction to which these arguments point is clear. We must explicitly aim to nurture and strengthen community capital in order to improve our economic and social well-being. Government and corporate

decisions should be reviewed for their effects on all forms of community capital. Programs and policies need to be effected at every level to ensure that community capital is properly considered.

In a nutshell, we need to *do development differently*.

Looking Ahead

In chapter 2 we move from the more global perspective of this chapter to focus on the regional, community and neighborhood level, and illustrate what we mean by sustainable community development. Chapter 3 concludes part 1 by addressing the question of how to achieve sustainable community development through making community policy. Together these three chapters provide a foundation for part 2.

Part 2 includes 11 chapters examining each of the sustainable community building blocks, from food and water and waste, to energy and transportation and land use, to housing, green buildings, community economic development and climate change. Part 2 concludes with a chapter on communities integrating sustainability, which illustrates how many communities and local governments are now broadening their efforts from single-sector initiatives to more comprehensive integration of all of these building blocks.

Part 3 focuses on mobilizing citizens and their governments toward sustainable communities, beginning with a chapter on governing sustainable communities. It proceeds with chapters on tools for community sustainability and the Community Capital Tool we developed based upon the framework described above. Part 3 concludes with a reflection on lessons and challenges.

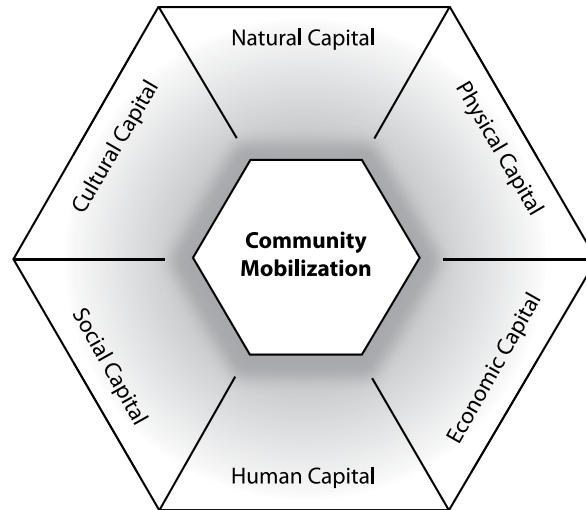


Fig. 1.1: *Community Capital: A Framework for Sustainable Community Development. Sustainable development requires mobilizing citizens and their governments to strengthen all forms of community capital. Community mobilization is necessary to coordinate, balance and catalyze community capital.*

Community Capital Framework

The Community Capital Framework has been designed from the following principles:

- Communities need all six forms of capital to achieve well-being and sustainability. No single capital is sufficient in creating or supporting sustainability.
- It is important to understand your community's capital, including strengths and weaknesses.
- Capital interact with each other; changes in one form of capital may generate positive or negative changes in other forms of capital.

The appendix describes *Pando | Sustainable Communities*, a new initiative intended, among other things, to effectively make this book a living document.