

Green Economy at Community Scale

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by Tim Jackson and Peter A. Victor



Metcalf Foundation

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Contents

Executive summary	6
1. Introduction	9
2. Shared prosperity	15
3. Foundations for the green economy	21
4. Enterprise for the community	26
5. Jobs worth having	32
6. Investing in the future.....	38
7. Making money work	45
8. Building sustainable communities.....	56
Appendix: Levers for change.....	63
References	66

Executive summary

This report explores the concept of the green economy as a potential solution to multiple challenges including climate change, biodiversity loss, resource scarcity, and financial instability.

Green economy is still a contested concept (Section 1). At its worst, it simply provides cover for business-as-usual — the escalation of unsustainable corporate practices that threaten the integrity of the natural world and undermine the resource base for future prosperity. At its best, green economy offers a positive blueprint for a new economics — one firmly anchored in principles of ecological constraint, social justice, and lasting prosperity. A premise of this report is that such a blueprint is worth articulating.

For the most part, explorations of the green economy have until now mostly taken place at a national or international level. This report addresses the implications of the green economy at the local level. It analyses both the conceptual foundations for more sustainable community-based economic activities and the empirical evidence for successful implementation of these ideas.

A green economy is not an end in itself. Rather, as we argue in Section 2, it is a means towards a shared and lasting prosperity. But what exactly does prosperity mean? We propose a definition of prosperity in terms of the capabilities that people have to flourish on a finite planet. It is clear that a part of our prosperity depends on material goods and services. Living well clearly means achieving basic levels of material security. But prosperity also has important social and psychological components. Our ability to participate in the life of society is vital. Meaningful employment, satisfying leisure, and a healthy environment also matter. Section 2 shows how individual prosperity is linked intrinsically to community. Thriving communities are the basis for shared prosperity.

A further premise of this report is that the principle goal of the green economy is to deliver prosperity. In other words, the green economy must deliver the capabilities for individuals to flourish and communities to thrive. Prosperity demands not only the provision of goods and services but also security in employment and stability in markets. Drawing on emerging understandings of the green economy at the macroeconomic level, Section 3 identifies four specific aspects which are of primary importance to thriving communities: the role of enterprise, the quality of work, the structure of investment, and the nature of the money economy. These aspects of the green economy are explored further in subsequent sections of the report.

Section 4 proposes a role for enterprise which is grounded in providing the capabilities for people to flourish in their communities. First and foremost, of course, these capabilities must include the necessities of life: food, clothing, and shelter. But beyond these needs, our prosperity depends on the “human services” that improve the quality our lives: health, social care, education, leisure, recreation, and the maintenance, renovation, and protection of physical and natural assets. This vision of enterprise as service is illustrated through local case studies. We also explore forms of company structure and organization set up specifically in the interests of community: co-ops, B-corporations, and community interest companies.

Section 5 explores the role of work and employment in the green economy. Work is more than just the means to a livelihood. It is also a vital ingredient in our connection to each other — part of the “glue” of society. Good work offers respect, motivation, fulfilment, involvement in community and, in the best case, a sense of meaning and purpose in life. Section 5 outlines a two-fold strategy for achieving high levels of employment within the green economy. On the one hand, we illustrate the expansion of employment through a “service-enterprise” economy, using community-based case studies as examples. On the other, we explore the role of reduced working hours in achieving a just distribution of working time.

Investment (Section 6) is one of the most important functions for any economy. Protecting the assets on which future well-being depends is an integral component of prosperity. Section 6 identifies a number of essential targets for investment at the local level. The portfolio of green investment must include: improving energy efficiency and resource productivity; increasing the capacity for a local service enterprise sector; building and maintaining community assets (public spaces); protecting and enhancing ecological assets (green spaces); and developing local renewable energy opportunities. Section 6 illustrates these different investment targets using local case studies. It also explores the appropriate form and structure of local investments.

A key finding from our own macroeconomic work on the green economy is that the money economy (the creation, maintenance, and stability of the money supply) is a vital component of sustainability. The unconstrained creation of money through commercial debt stimulates unsustainability in investment and instability in financial markets. In the wake of the financial crisis of 2008/09, with wider capital markets still in disarray, lending constraints hinder green investment and undermine the prosperity of communities. Section 7 explores community responses to this dilemma and outlines a range of potential institutional innovations including: community banking, peer-to-peer lending, community bonds, local exchange trading schemes, and the role of sovereign money in directing social investment.

The final section of the report draws together our findings and identifies positive steps towards the creation of green local economies. The report as a whole explores the opportunities for communities to take independent positive action in pursuit of a green local economy and illustrates these possibilities with examples. It would be a mistake, however, to suggest that transformation is possible without wider institutional and infrastructural changes. In Section 8, we explore the wider role of governance in stimulating and enabling change and develop an inventory of policy levers to aid the transition to a green economy. The Appendix collects some case studies to illustrate these interventions.

1. Introduction

A green economy is one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.

— *United Nations Environment Programme (UNEP) 2012*

The purpose of this report is to explore the concept of the green economy in the context of local communities.

Perhaps the single most important challenge facing society today is the need for economic activity to remain within the ecological constraints of a finite planet. As Johan Rockström and his colleagues have pointed out, humanity must live within a “safe operating system” defined by clear “planetary boundaries” if it is to hope for sustainability in the longer term.¹ Climate change, the loss of biodiversity, and emerging scarcities in essential natural resources all represent significant threats to that safe operating space.

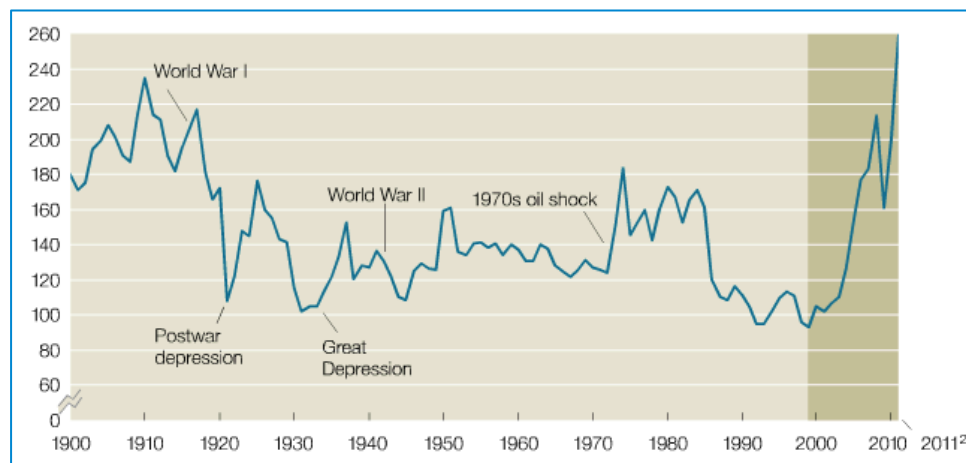
They also threaten the stability of our economic systems. Among the factors that led to the financial crisis in 2008 was a sharp rise in commodity prices. Commodity prices have increased by 147% since the turn of the millennium, erasing all the decline of the twentieth century (Figure 1).² Oil prices peaked at US\$147 a barrel in July 2008. Rising food prices led to riots in poorer countries. Although prices fell through the end of 2008, they had already started to rise again by the beginning of 2009 and have maintained an upward trend in spite of continuing “deflationary headwinds” from the crisis.

¹ Rockström et al 2009.

² McKinsey & Company 2011

http://www.mckinsey.com/insights/energy_resources_materials/a_new_era_for_commodities (accessed Oct 7, 2013).

Figure 1: McKinsey Global Institute Commodity Price Index: 1900 – 2011



Source: Footnote 2

Climate change also poses highly uncertain but potentially destabilizing costs on society. The cost of not acting against climate change could be equivalent to losing between 5% and 20% of GDP each year, indefinitely, according to the influential *Stern Review*.³ But the costs of addressing climate change are not inconsequential either. The International Energy Agency estimates that the transition away from fossil fuels will require additional investment of at least US\$11 trillion between now and 2030.⁴ Meeting climate change targets could render existing fossil fuel investments “stranded assets,” essentially worthless in financial terms. Some fund managers are already beginning to exclude such holdings from their portfolios.⁵

Facing these problems from within an economic system still struggling to regain its footing compounds the challenge, particularly in the presence of a widely held view that there is no alternative. Recently, however, and in particular in the wake of the Rio+20 Summit in June 2012, the concept of the green economy has emerged as a potentially useful way of convening a set of emerging ideas that could provide such an alternative.

We should acknowledge here straight away that the green economy itself is still a contested concept. To some, it represents a way to save a failing economic system. “A green economy grows faster than a ‘brown’ economy over time, while maintaining and restoring natural capital,” argued United Nations Environment

³ Stern, N 2006. *The Economics of Climate Change* (Cambridge: Cambridge University Press).

⁴ IEA 2012. *World Energy Outlook 2009*. Paris: International Energy Agency.

⁵ See: <http://www.storebrand.no/site/stb.nsf/Pages/newsdesk.html#/news/storebrand-reduces-carbon-exposure-in-investments-19-companies-excluded-62954> (accessed Oct 15, 2013).

Programme (UNEP).⁶ Others have disputed the analysis underlying this claim.⁷ Some have challenged the ontology of the green economy itself. Clive Spash has argued that the green economy lacks “the essential reconnection with Nature that would put humans in context as members of a larger community of organisms.”⁸

At its worst, the concept of green economy may simply be a wolf in sheep’s clothing, masking the power of capitalism to destroy the environment and along with it the traditional ways of understanding our place in nature. At its best, it might capture the fundamental truth that all economies are embedded in social systems which themselves are embedded in, and dependent upon, nature. Green economies turn brown when they undermine this embeddedness. Brown economies might become green when they acknowledge the dependence of economies on the biosphere, effectively regulate throughput, and work to protect the ecological space on which all life on Earth, including human, depends.

In our view, the contest for the meaning of the green economy is not yet decided. As ecological economists our work is anchored in the view that economies are sub-systems of the biosphere, mediated by the values and institutions of society. We have worked individually and together to understand the many dimensions of these relationships for several decades.⁹ Most recently, we have begun to collaborate together on the development of what we call an “ecological macroeconomics.”

Responding to the dilemma of remaining within ecological limits in a growth-based society has often been construed primarily as a microeconomic task — one that governments can address with conventional fiscal instruments of tax and subsidy. The “external” costs associated with environmental and social factors should be “internalized” in market prices, according to familiar axioms. Incorporating “shadow prices” for environmental goods into market prices will send a clear signal to consumers and investors about the real costs of resource consumption and ecological damage, and incentivize investment in alternatives, according to this conventional wisdom.

But this prescription has been hard to implement over the last few decades. Even before the crisis, it proved difficult to forge agreement on fiscal measures to internalize environmental costs and, indeed, to stimulate appropriate levels of private investment in alternative technologies. The financial crisis has certainly made both of these tasks harder. Despite an early focus on “green stimulus” as a

⁶ UNEP 2012: the term “brown” economy, while not in common usage, has been used occasionally to refer to conventional economies built on fossil fuels.

⁷ Victor and Jackson (2012) point out that the UNEP analysis treats the world as a single, undifferentiated economy, assumes substantial additional green investment is possible without considering how it will be financed, and sets targets for global reductions in greenhouse gas emissions that are too modest to avoid a significant risk of catastrophic climate change.

⁸ Spash 2012.

⁹ Jackson 2009, Victor 2008, Jackson and Victor 2011.

way of invigorating the global economy, subsequent responses have failed consistently to address ecological challenges.

Fears of damaging economic growth have led politicians to shy away from both ecological taxation and green investment. In fact, fragile private and public sector balance sheets have slowed down investment in the real economy generally, let alone the additional (and less familiar) investment needed to make a transition to a low-carbon economy. Conventional responses have focused instead on cutting public spending (austerity) and stimulating consumption growth (consumer spending) as the basis for economic recovery. Unfortunately, these responses tend to ignore the structural problems of the conventional paradigm and delay the investment needed in the green economy.

The scale and nature of this dilemma suggest that the combined challenges of climate change and resource scarcity require macroeconomic as well as microeconomic responses. In fact, we believe, there is a need to develop a fully consistent ecological macroeconomics in which it is possible to maintain economic stability, ensure full employment, and yet remain within the ecological constraints and resource limits of a finite planet.¹⁰

This task — to develop an ecological macroeconomics — is the one we set ourselves three years ago. Working together from clear first principles, we began to build our Green Economy Macroeconomic Model and Accounts (GEMMA) framework.¹¹ The fundamental building blocks of our approach were three-fold.

First, we wanted our model to reflect accurately the structure of the real economy — that is, to provide an account of incomes, spending, investment, taxation, demography, and the structure of industry consistent with the United Nations System of National Accounts for any given country. Second, we wanted our framework to make a full and proper account of the ecological and resource constraints on the global economy — as applied at the scale of the national economy. Finally, we wanted our model to incorporate a consistent description of the financial economy, including the supply of money from and to economic actors and the effect of the money supply on both nominal and real demand. An ecological macroeconomics must show us not only how much investment is needed, for instance, in order to reach ecological goals, but also how that investment is to be financed.

This last goal was particularly important in the wake of the financial crisis. One of the main shortcomings of conventional economics was its failure to anticipate the impact of fragile balance sheets on the stability of the economy. In fact, most conventional economic models virtually ignore the balance sheet

¹⁰ For a summary of our arguments for an ecological macroeconomics, see for instance: Jackson, T 2009. *Prosperity without Growth*. (New York: Routledge); Victor, P 2008. *Managing without Growth*. (Cheltenham: Edward Elgar).

¹¹ Jackson and Victor 2013.

structure of the national economy, in spite of warnings by some far-sighted economists of its importance for economic stability.

The model is currently being calibrated against Canadian and UK data. But it is being developed in such a way that in the future it could also describe elements of the green economy at the national level for any economy operating under the broad structure of the UN System of National Accounts. A full description of our macroeconomic work on the green economy is beyond the scope of this report. Our intention here is to explore the implications of the green economy at community scale. In what follows, we draw substantially on the understandings we have gleaned from working at the national scale. But we also want to explore here the lessons to be learned for the green economy from numerous small-scale, community-based initiatives for social and ecological change.¹²

There are in principle many ways we could have approached this task. One familiar categorization of issues would divide the subject matter up according to sectors such as energy, food, transportation, housing, waste, and green space. This approach is clearly useful when it comes to developing specific policies and implementation strategies in each of the sectors. But our aim here has been to tease out the cross-cutting organizational dimensions of the green economy. The kinds of questions that orient our inquiry include:

- How is enterprise to be organized?
- How is labour to be employed?
- What is the structure of investment?
- What kind of financial systems are appropriate?
- What sort of governance structures are relevant?

These more foundational questions need to be, in our view, logically addressed prior to questions about specific industrial sectors like food, energy, transport, or waste. They also speak more closely to the first principles of system change at the economic level. Of course, the result of changes in these cross-cutting dimensions will often reveal themselves at the sectoral level. Indeed, our report draws on numerous examples to illustrate, for example, changes in the way that enterprise is organized in the energy, food, or transportation sectors.

But the advantage of approaching the subject through the lens of these broader questions is two-fold. It allows us to develop an approach to the green economy that starts from first principles, as it were, about the organization of economic activity. This approach has served us well in our work at the macroeconomic level and we believe that it will also help the Metcalf Foundation to unravel the implications of, and build the foundations for, the green economy at the community level.

¹² For the purposes of this report, we understand community to mean a group of people located in proximity to one another with shared values and interests.

In addition, it seems clear that the strength and character of communities lie less in the technologies they employ and more in the social relations they engender. The green economy is not just about resource efficient technology — “treading lightly on the earth” — though this is clearly important. It also encompasses matters of democratization and voice, of social inclusion and justice, and of policy, power, and governance. These questions also lie at the heart of community.

Perhaps the most fundamental point of all concerns the ends or purpose our economies are supposed to serve. What is the nature of prosperity itself and how should the economy attempt to deliver this? This question has motivated our wider work on the green economy and is the starting point for our exploration of the green economy at community scale in this report.

2. Shared prosperity

The green economy is not an end in itself; rather it is a means towards a shared and lasting prosperity. The economy must deliver the capabilities for people to thrive and for communities to flourish. Beyond simply delivering goods and services, this task involves maintaining and enhancing social and environmental well-being. Stability in markets, security in employment, ecological integrity, sustainability in supply chains, fairness: these are some of the conditions on which present and future prosperity depends.

In the following sections of this report we will explore in more detail how it might be possible to shape the economic institutions that support these conditions. First however, we must address more basic questions: What is the nature of prosperity? What does it mean for people and communities to prosper? What exactly are the end goals of the green economy?

It is not unusual to find the answer to these questions cashed out in purely economic terms. Increased prosperity is about having more money in our pockets, according to a familiar wisdom. Rising incomes mean better choices; richer lives; an improved quality of life for those who benefit from them. Or so the story goes.

This response clearly has an appealing logic when it comes to the world's poorest people. A meaningful approach to prosperity must certainly address the plight of two billion people across the world still living on less than \$2 a day — half the price of a tall skinny latte at Starbucks. It has a kind of sense to it, even for ordinary Canadians working to make ends meet in difficult economic conditions. Having a few extra dollars in our pockets can sometimes mean the difference between struggling for necessities and indulging in the occasional luxury.

But to cash out prosperity entirely in terms of money has some obvious drawbacks. Not the least of these is that it fails to answer the underlying question: What is the money for? What do we hope and aspire to achieve with ever-increasing incomes?

It is interesting to note that when local communities come together to address their own well-being, they tend to adopt a far wider view of prosperity than the one adopted by economists in describing the progress of society. An innovative example of this is the Resilience Collaborative — a stakeholder engagement forum initiated by Barrie Community Health Centre in Simcoe County, Ontario. The aim of the initiative is to encourage a wider engagement of community members in identifying the changes that could make Simcoe County a better

place for people to live. As we shall see below, their focus includes health, education, and the strength of the community itself as well as more traditional economic indicators of prosperity.

In fact, it turns out that casting prosperity in terms of money is quite a modern construction. In the original sense of the word, prosperity is about our aspirations (*speres* in Latin) for the good life. The word itself suggests a continuing quest for well-being and social progress. Prosperity is about hope. It is about how well things are going for us. Of course the good life has undeniable material dimensions. It is perverse to talk about things going well when there is inadequate food and shelter. But it is also plain to see that the simple equation of prosperity with abundance is false even when it comes to these simple material requirements.

When you've had little food for months and the harvest has failed again, any food at all is a blessing. When the walk-in fridge-freezer is already stuffed with overwhelming choice, even a little extra might be considered a burden on our well-being, particularly if you're tempted to eat it. Once your appetite for strawberries, say, is sated, more of them may provide no further joy at all. On the contrary, they may even make you ill. And if you're tempted to ignore these bodily feedback mechanisms against excess you are likely to find yourself on the road to obesity and ill-health: outcomes which it is nonsensical to describe as desirable, satisfying, or an improvement to well-being.

This simple example reveals that the dimensions of prosperity are much more complex than — and cannot really be measured by — material abundance. More is not always better. Quality is not the same as quantity. The relationship between material affluence and prosperity is non-linear. At the very least it is clear that prosperity is not entirely or even primarily material in nature.

Prosperity has vital social and psychological dimensions. To do well is in part about our ability to give and receive love, to enjoy the respect of our peers, to contribute useful work, to feel secure in the face of uncertainty, to have a sense of belonging and trust in our community. Some have even suggested a “transcendental” need in human beings. For the more religious, this may entail belief in some higher power. Secular understandings of well-being also accept that the human psyche craves meaning and purpose in life beyond material or financial acquisition. In short, an important component of prosperity is the ability to participate meaningfully in the life of society.

The clear implication here is that we need to broaden our notion of what prosperity really means. There is a critical social dimension to prosperity: individual prosperity is curtailed in the presence of social calamity. That things are going well for me personally is of little consolation if my family, my friends, and my community are all in dire straits.

Some perspectives on prosperity — particularly from the wisdom traditions — take this point even further to suggest a moral component to prosperity. Islamic commentator Zia Sardar argues that “prosperity can only be conceived, as a condition that includes obligations and responsibilities to others.”¹³ The same principle is enshrined in the Quaker’s *Moral Economy Project*, in Bhutan’s *Gross National Happiness* framework, and in the African philosophy of Ubuntu.¹⁴ I am because we are, suggests Ubuntu. My prosperity hangs on the prosperity of those around me, these traditions suggest, as theirs does on mine.

Irrespective of this moral extension, it is clear that a meaningful concept of prosperity must lengthen its time horizon. Prosperity is not just a fleeting condition measurable in terms of instantaneous gratification. Our sense of things going well always includes some notion of continuity. We aren’t inclined to think that life is going swimmingly if we confidently expect things to fall apart tomorrow. “Yes, I’m fine,” we might answer an everyday inquiry about our well-being. “I’m filing for bankruptcy tomorrow.” Such a response wouldn’t make sense. Prosperity is not a momentary sensation. It demands conditions and circumstances that are expected to endure. Though as consumers, we are often tempted not to look beyond immediate gratification, it is clear that satisfaction today means nothing if it undermines the conditions on which tomorrow’s well-being depends.

These two dimensions of prosperity — its shared nature and its longevity — come together in relation to environmental concerns. A fair and lasting prosperity cannot be isolated from the ecological conditions and resource availabilities on which our collective well-being depends. The levels of prosperity to which we can aspire as a species are physically bounded by the capacity of the planet to support us. To ignore these natural bounds to material flourishing is to condemn our descendants — and our fellow creatures — to an impoverished planet.

In fact, at first sight, these physical limits might appear to circumscribe the possibilities for prosperity itself completely. It would certainly appear to be environmentally disastrous, not to say physically impossible, for 7.2 billion people all to achieve the level of material affluence currently attained by the richest people in the world.

But in defining prosperity as a social and psychological condition, as much as a material one, we have opened up an intriguing possibility: that material bounds do not in themselves constrain prosperity; that with appropriate attention to material limits, it may be possible to improve quality of life for

¹³ Sardar 2007.

¹⁴ For a summary of Quaker ideas on prosperity see Brown and Garver 2008; for more information on Bhutan’s Gross National Happiness Index see Ura et al 2012; for an overview of the Ubuntu philosophy see Gade 2012.

everyone even as we reduce our combined impact on the environment. Although it is clearly essential for the poorest to attain a decent quality of living, the richest may also live better while consuming less.

The idea that humans can flourish and at the same time consume less is clearly tantalizing. It would be foolish to think that it is easy to achieve, but equally, it should not be given up lightly. It may well offer the best underlying vision we have for the green economy: prosperity is the art of living well on a finite planet.

This broader understanding of prosperity has recently begun to inform a more sophisticated approach to progress — and to the measurement of progress in practice — even among policy-makers. An example of this new approach is a report published in 2012 entitled simply “How are Canadians *really* doing?” The Canadian Index of Wellbeing (CIW) identifies eight key domains of well-being in Canada:

- community vitality
- democratic engagement
- education
- environment
- healthy populations
- leisure and culture
- living standards
- time use

The index sets out to measure the quality of life in Canada using a mixture of subjective and objective indicators in each of these eight domains. Living standards are measured through a selection of relatively conventional economic indicators including: the post-tax median income of Canadian families, the Royal Bank of Canada’s housing affordability index, and the ratio between the richest and poorest sectors of society.

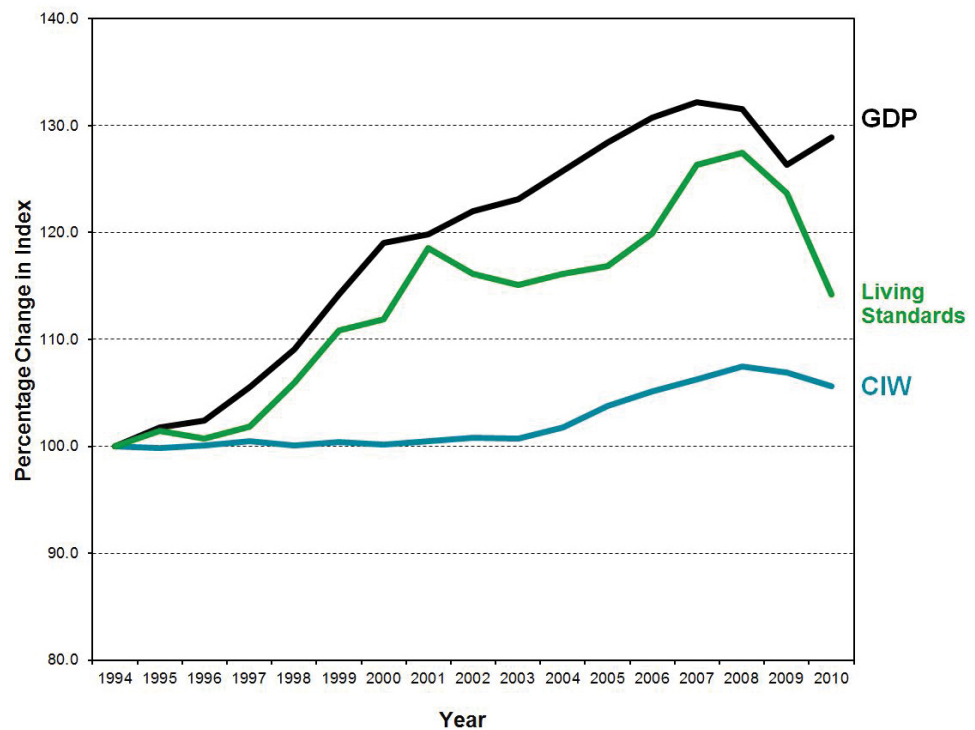
Non-financial measurements are equally important to the index. Community vitality is assessed using indicators of membership in voluntary organizations, time spent in unpaid care of other people, and the rate of violent crimes in the community. Environmental measures include the level of emissions of greenhouse gases, the consumption of finite resources, local air quality, and the population levels of local species.

Making sense of such disparate measurements can sometimes be difficult and combining them into a single index of well-being entails assigning weights that may seem arbitrary. But subjective and objective indicators of prosperity can still provide a useful complement to the more conventional measure of economic consumption or gross value added across the economy. They can also offer important perspectives on the long-term health of the community, beyond the state of the formal economy.

Figure 2 illustrates how living standards across Canada, as measured by the CIW, continued to fall even as the formal economy began to recover in the aftermath of the financial crisis. It also illustrates how growth in the CIW, as a whole, was much slower than growth in the gross domestic product (GDP) between 1994 and 2010 – a finding mirrored fairly consistently across similar attempts to measure well-being in other countries.¹⁵

The CIW framework is not just a measurement tool. It can also be a useful input to policy at community level. For instance, the Resilience Collaborative, mentioned above, has developed a questionnaire (based on the CIW indicator set) which they use to identify troubling issues in the community and to take proactive steps in resolving them.

Figure 2: Trends in Living Standards, CIW and GDP (per capita) between 1994 and 2010



Source: CIW 2012

The key point that emerges from these considerations is that prosperity is more than income. It transcends material concerns and is not definable in terms of material abundance. Prosperity resides in the quality of our lives and in the health and happiness of our families. It is present in the strength of our

¹⁵ See Kubiszewski et al 2013 for a recent overview of the most well-known of the “adjusted” GDP measures.

relationships and our trust in the community. It is evidenced by our satisfaction at work and our sense of shared meaning and purpose. It hangs on our potential to participate fully in the life of society.

Prosperity consists in our ability to flourish as human beings on a finite planet. The challenge for the green economy is to create the conditions under which this is possible.

3. Foundations for the green economy

A green economy is an economy “that results in improved human well-being and social equity,” argues UNEP, “while significantly reducing environmental risks and ecological scarcities.” In simple terms, they go on to say, the green economy is “low-carbon, resource efficient and socially inclusive.”¹⁶

From the perspective of our previous discussion, we can identify three core concepts which form the foundations for the green economy. The first is prosperity itself: the pursuit of human well-being lies at the heart of the economy; it motivates economic activity and justifies economic output. The second is the biophysical boundaries within which economic activity must take place. Economic activity which undermines the ecological assets on which prosperity tomorrow depends is unsustainable. The final concept is social justice. Prosperity which provides only for the few and fails to alleviate the plight of the poorest, where there is a clear mismatch between effort and reward, or where the opportunities for advancement are restricted unfairly, diminishes the quality of society and leads eventually to social instability. To put things even more simply, the objective of the green economy is to achieve a shared (socially just) and a lasting (environmentally sustainable) prosperity.

Though easy enough to articulate conceptually, this vision does not yet define unambiguously the dimensions of the green economy. Nor does it offer a clear macroeconomic framework distinct from conventional economic thinking and practice. The task of this section is to draw out these dimensions more clearly and to suggest how the macroeconomic framework for a green economy differs from the framework for a conventional economy.¹⁷ In subsequent sections we shall draw on these macroeconomic principles in order to articulate community-level responses.

Most current thinking assigns the distinctiveness of the green economy to the role of investment. “In a green economy,” claims UNEP, “growth in income and employment are driven by public and private sector investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services.” The key aim for transition to a green economy in this view is to “enable economic growth and investment while increasing environmental quality and social inclusiveness.”

¹⁶ UNEP 2012, p 16.

¹⁷ These suggestions draw in part from our own previous publications (Jackson 2009, Victor 2008) and in part from our ongoing work together to define a macroeconomic model of the green economy (Jackson and Victor 2013).

The focus on investment as a fundamental element in the green economy is easily justified. Investment plays a crucial role in any economy. Investment is the way in which economics handles the relationship between present and future. There is an important distinction to be made here between “real investment”¹⁸ — the building of infrastructures, homes, and other physical assets — and “financial investment” in commodities or in property. We shall have more to say about this distinction in Section 7. For now, we focus mainly on real investment: the setting aside of resources today in order to build, protect, and enhance the physical assets on which tomorrow’s prosperity depends.

So far so good. Investment is as important at community level as it is at the national level. But how does investment in the green economy differ from investment in the conventional economy? The portfolio of real investment in the green economy highlights low-carbon technologies, resource productivity, and the protection of ecological assets (biodiversity and ecosystem services). In the conventional economy, by contrast, investment is aimed at building up and improving the stock of produced assets. Investment today is justified, in the conventional view, on the basis of the economic returns to be gained from these produced assets tomorrow. Returns on investment are expected to flow partly from improvements in productivity — particularly in labour productivity — but also from the development and sale of new consumer products.

Capitalism progresses, in the words of the economist Joseph Schumpeter, through a process of “creative destruction” — the continual throwing over of the old in favour of the new.¹⁹ Though there are some clear incentives in the existing framework for firms to invest in improved energy efficiency or increased material productivity along the way, the main objective is to expand the markets for existing products and to build new markets for new ones.

The end result of the conventional framework is an economic system which has several defining characteristics. On a positive note, the economy does become more efficient; the energy and material use per dollar of output often declines over time. But paradoxically, these efficiency improvements tend to be overwhelmed by expansions in the scale and diversity of consumer products. Historically at least, the overall impact of conventional investment has been to increase material throughput, energy consumption, and environmental impact.²⁰ Finally, and perhaps most importantly for our discussion, such a system relies on continually expanding the demand for consumer products.

Seen in this light, it becomes clear that achieving a green economy simply through changes in the pattern and focus of investment is far from straightforward. In the first place, the new “green” investments in the protection

¹⁸ Sometimes called fixed capital formation.

¹⁹ Schumpeter 1975.

²⁰ See Jackson 2009, Chapter 5, for an in-depth discussion of this point.

of ecological assets must be sufficient to offset the expansion of environmental impact associated with conventional investments. This is of course easier to achieve the more conventional investment is given over, instead, to green investment. But for this shift to take place, green investment must be at least as attractive as conventional investment to investors.

In purely financial terms, this is a demanding task. Improvements in energy efficiency can be very cost-effective, particularly in the face of rising fuel costs as many community-based initiatives (see Section 4) are beginning to show. Some investments in ecological assets also demonstrate attractive financial returns, even under conventional assumptions (see Section 6). But we must expect that there are also many cases in which green investments have lower rates of return over longer time scales than their counterparts in the resource-intensive, speculative investments of the conventional economy.

To reiterate, green investment is without doubt an essential foundation for the green economy. Making green investment more attractive is something that can be influenced, in part at least, by the policy landscape; we address this in Section 8. It also depends crucially on the way in which the money supply works and the financial sector is organized. This is the subject of Section 7.

For now, the important point to emphasize is that the green economy cannot simply consist in “adding in” a component of green investment to the existing recipe for development and hoping that it will repair environmental damages of the past and offset all negative impacts of growth. Something more profound is needed.

In fact, the starting point for a more profound reinvention of the economy is clear. It begins with the primary purpose of the green economy: to deliver a shared and lasting prosperity. Our potential to prosper, to flourish as human beings in a thriving community, depends on having the means to a livelihood and the wherewithal to meet our needs and pursue our aspirations. It also demands a degree of security, a sense of belonging, the ability to participate in the community, and the opportunity both to share in a common endeavour and to pursue our potential as individuals.

As regards the kind of economy needed to support these goals, we can already identify some of the desirable characteristics. We know for example that economic stability matters. When economies collapse, bad things happen. Businesses go bust and people lose their livelihood. These events pose a direct threat to our quality of life. We know too that equity matters. Unequal societies drive unproductive status competition and undermine well-being not only directly but also by eroding our sense of shared citizenship.²¹

²¹ Wilkinson and Pickett 2009.

Meaningful work — not just paid employment — is an important component of any economy, for all sorts of reasons. Apart from the obvious contribution of work to the provision of society’s goods and services and of paid employment to people’s livelihoods, work is one of the ways in which we participate in society. This participation contributes directly to our prosperity. Through our work we “create and recreate the social world and find a credible place in it.”²²

With a little thought we can also begin to characterize the specific economic activities from which the green economy needs to be built. First of all, such activities need to provide the goods and services that contribute to prosperity. To be clear, this is not just about producing and consuming material stuff. It’s about providing the capabilities for people to flourish in their community, socially and psychologically as well as materially. Second, these economic activities must provide decent, satisfying livelihoods for people. Finally, the activities of the green economy need to be low in carbon, efficient in resource use, and “tread lightly” on the earth. They must provide the ability for people to flourish and communities to thrive without destroying the ecological assets on which our future prosperity depends.

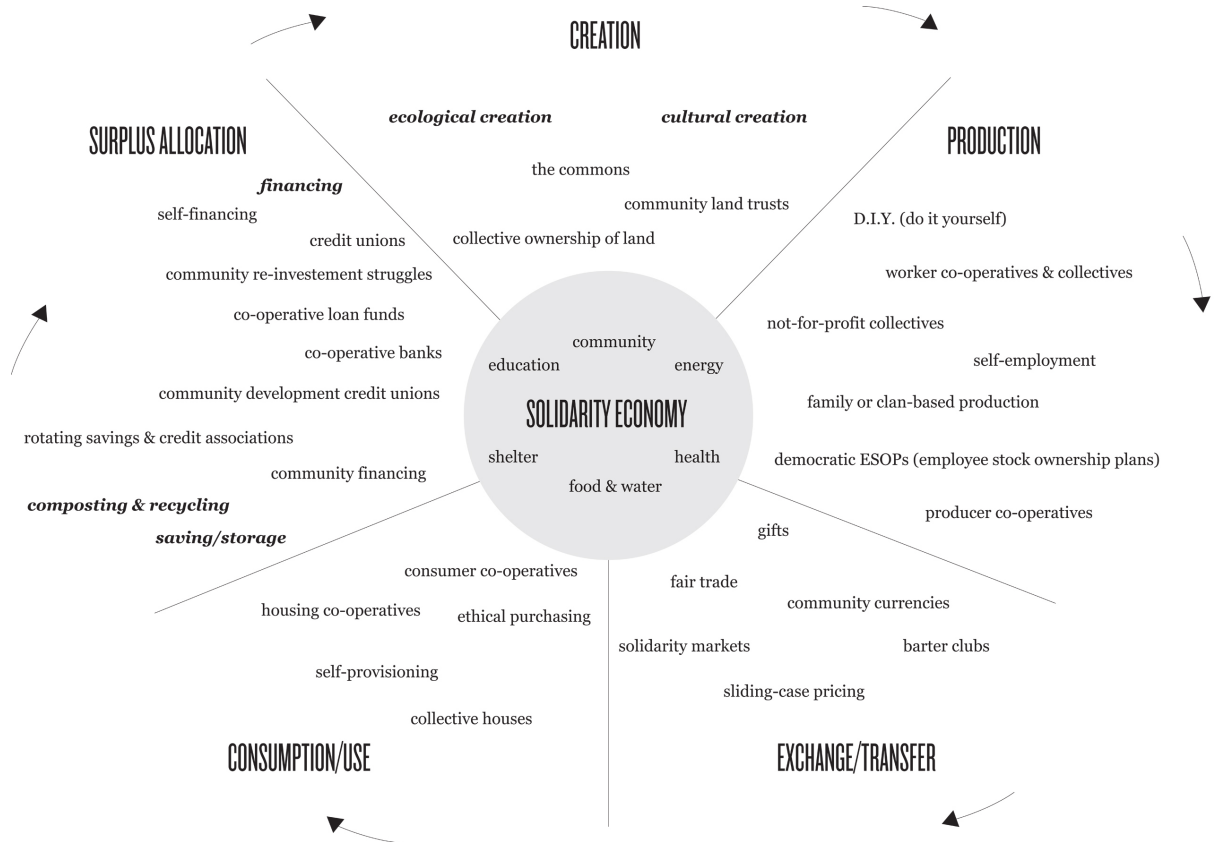
In the next section, we will see how these characteristics provide the basis for a new vision of enterprise: not as a speculative, profit-maximizing division of labour, but as a form of social organization embedded in the community and engaged in delivering the services that improve our quality of life. In the green economy, enterprise must provide real opportunities for meaningful employment. It must be materially-light and ecologically sustainable, yet deliver the capabilities we need in order to prosper: nutrition, health, education, renovation and maintenance, care, craft, culture, and ecological restoration.

This vision of community-based, service-oriented enterprise is as important to the green economy as is the concept of green investment. Interestingly, it has much in common with the emerging focus on the “solidarity economy” (Figure 3), a concept which is finding a surprising support base from local initiatives such as Solidarity NYC to a programme of research supported by the United Nations Research Institute for Social Development and the International Labour Organization.²³ A key point emphasized by the solidarity economy is that the new economy has as much to do with alternative forms of social organizations as it does with the sectoral focus of enterprise. Again, this is something we return to in later sections.

²² Jackson 2009, Chapter 6.

²³ See for example:
<http://www.unrisd.org/80256B3C005BD6AB/%28httpEvents%29/513E84D6BA2D56EEC1257AFA00469157?OpenDocument> (accessed Oct 15, 2013).

Figure 3: Elements of the solidarity economy



Source: http://solidaritynyc.org/#/resources/the-basics/economyegg_web-3/

In short, the discussion in this section has identified four elements essential to the emergence of a green economy: the role of enterprise, the quality of employment, the structure of investment, and the nature of the money economy. All of these interconnected elements are essential to a shared and lasting prosperity at community scale. In the following pages we explore each of them in more detail, offering both conceptual frameworks for success and pragmatic examples of the green economy from local communities.

4. Enterprise for the community

The aim of this section is to establish a vision for enterprise on which the green economy can be built. In the broadest terms, we can define the role of enterprise in terms of providing the capabilities for people to prosper and for communities to thrive. From what we know already, it is possible to identify a number of clear operational principles that enterprise should fulfil in the green economy. Specifically, the discussion in the previous pages points towards five simple criteria:

- Providing an equitable distribution of the goods and services needed for prosperity.
- Using as little as possible in the way of materials and energy.
- Causing as little damage as possible to ecosystems and ecological assets.
- Offering people meaningful employment and the opportunity to participate in society.
- Contributing to the vitality of the community.

Guided by these criteria, it is instructive to ask two important questions about enterprise in the green economy:

- Are there specific sectors of economic activity which should be encouraged in the green economy?
- What organizational form should enterprise take in the green economy?

It is not uncommon to find answers to the first of these questions couched in terms of very specific technological sectors related to energy efficiency, renewable energy, and resource productivity. This response accords with the technological view of the green economy discussed in the previous section: an economy more or less like the existing one, but in which investment transforms the energy infrastructure to low-carbon alternatives. Clearly, in such an economy, we would need new energy companies to produce and supply green electricity, energy efficient lights and appliances, and so on.

We have already explained why this view of the green economy is incomplete. Nonetheless, the green technology sector is one obvious place to locate a vision of enterprise for the green economy. There are numerous examples of such companies in Canada and abroad, particularly in the energy sector. Bullfrog Power is a Canadian company offering green electricity and natural gas to households and businesses across the country.²⁴ Good Energy is a similar provider in the UK.²⁵

²⁴ <http://www.bullfrogpower.com/about/mission.cfm> (accessed Oct 28, 2013).

²⁵ <http://www.goodenergy.co.uk/> (accessed Oct 28, 2013).

One of the characteristics of these new energy companies is that they tend to be smaller — and often more embedded in the community — than conventional providers. There are several reasons for this. In the first place, many of the green energy companies are recent start-ups, developing new approaches to energy supply and energy efficiency more or less from scratch, unencumbered by sunk capital or entrenched mindsets. But there is another important reason for this difference. Renewable, sustainable energy sources tend to be local in nature; as do the solutions that will make people's homes and businesses more energy efficient.

In other words, this is a sector which represents an obvious place for the development of community-based enterprises. Numerous examples attest to this, particularly in countries where the energy system has been open to green innovation for some time. Examples from Ontario include: Options for Green Energy, a Toronto-based company which facilitates Ontario residents in the purchase of community bonds which are invested in solar energy;²⁶ and the Community Power Fund, another Toronto-based financial enterprise established to support community-owned renewable energy in Ontario.²⁷

Financing for community-based energy is critical. It is vital to get the economic conditions right for communities to be able to invest in local solutions to energy needs. We will return to this point in later sections of the report and explore in more detail the innovations in community-based financing that make such developments possible. Here it is useful to point out another specific feature of these local, community-based energy enterprises. They tend to adopt organizational structures which differ from the conventional shareholder model of mainstream companies. Options for Green Energy and the Community Power Fund are both cooperatives, for example, as are many local Ontario-based green energy companies.

A wind energy park proposed for Lake Simcoe provides an example of how such cooperative projects come together. The Pukwis Energy Co-op and the Chippewas of Georgina Island First Nation jointly developed an ambitious plan for a 20-megawatt community wind park on Georgina Island in Lake Simcoe. The project was granted a valuable feed-in tariff contract under a 20-year power purchase agreement from the Ontario Power Authority in April 2010. The contract included a 1.5 cents/kWh bonus payment for aboriginal-owned projects — an 11% premium over the standard 13.5 cents/kWh rate.²⁸

Cooperative ownership is not the only possible organizational structure for community power. The Ontario Sustainable Energy Association defines

²⁶ http://www.optionsforgreenenergy.ca/why_options/ (accessed Oct 7, 2013).

²⁷ <http://www.cpfund.ca/> (accessed Oct 7, 2013).

²⁸ http://windfallcentre.ca/pukwis/index.php?st=1&s>About_Pukwis&p=Overview& (accessed Oct 7, 2013).

community power as a class of sustainable energy projects that are owned, developed, and controlled in full or in part (50% or more) by residents of the community in which the project is located. The advantages of such local ownership are numerous. More money (both income and tax revenue) remains in the local economy. Local job creation is higher.

Equally important, when people participate more fully in the development of local infrastructure and resources, it can strengthen community trust and offer people more control over their individual lives. This kind of participation contributes directly to prosperity, as we have defined it.²⁹ Sometimes, of course, these elements of local participation can go wrong or have unintended consequences. In the case of the Pukwis Wind Park, for instance, the project was shelved after local interest in the development dissipated.³⁰

A focus on community-based energy raises another crucial distinction between conventional enterprise and our vision of enterprise in the green economy. Many community power companies are established as “energy service companies” or ESCOs. The Ouse Valley Energy Service Company (Ovesco) is an example of this trend. Established by Transition Town Lewes in the UK as an Industrial and Provident Society,³¹ its focus is not simply on supplying megawatts, but on delivering the energy services that households and businesses need: heat, light, and motive power. Although at first sight the distinction between energy and energy services might seem opaque, it turns out to be a vital element in the reinvention of enterprise for the green economy.

The critical point is this: rather than oil or gas or electricity for their own sake, it is the services that energy can provide — thermal comfort, visual comfort, access — that contribute to our prosperity. It is entirely possible, for instance, to achieve the same level of thermal comfort in all sorts of ways. Wearing thin clothes in a draughty house burning lots of gas is one way. Wearing warm clothes in a well-insulated house and installing an air-source heat pump powered by renewable energy is another. In terms of prosperity these options may well be equivalent. In terms of resource intensity and environmental impact they are completely different.

²⁹ For further examples of community power in Ontario and elsewhere see (for instance) <http://www.communityenergyprogram.ca/Resources/ResourcesCommunityPower.aspx> (accessed Oct 15, 2013).

³⁰ The plan is currently “on ice”: <http://renews.biz/23637/first-nation-wind-farm-on-ice/> (accessed Oct 15, 2013).

³¹ Industrial and Provident Society legislation dates back to the mid-nineteenth century and is another form of ownership popular among community-based enterprises (<http://www.ovesco.co.uk/index.html>) accessed Oct 15, 2013. Modern versions of the IPS legislation include Community Interest Companies in the UK, Benefit Corporations (or B-corporations) in the United States, mutual societies, and cooperatives.

Unfortunately, for the most part, the predominant model of energy companies is to maximize the revenues (and subsequent profits) from the sale of energy supplies, rather than optimize the energy services that contribute to prosperity.

Of course, this latter model calls for a different mode of operation, different technical skills, a different relationship with the customer base, and a different financial structure than the conventional model. It may also call for a different organizational form as well. One of the reasons that community energy companies choose the cooperative or mutual model for their ownership structure is that it can reduce the pressure to create shareholder profit from simply maximizing throughput sales. It allows the company to adopt longer time horizons, lower financial returns in return for greater benefit to the local community, more customer involvement, and a better overall result in terms of the underlying service. In addition, of course, it creates substantial environmental benefit by moderating energy consumption.

What is true for energy companies is also true elsewhere in the green economy. In fact, this distinction between the throughput of material commodities and the delivery of services mirrors precisely the distinction we introduced in Section 2 between material affluence and our ability to flourish — not just in material ways. The fundamental question is this: what would enterprise look like if it were oriented towards providing the capabilities for people to flourish rather than being built around maximizing profits from the sale of material commodities? The example of energy opens up a whole new field of possibilities for the role of enterprise in the community.

First and foremost, our capabilities to flourish must include the necessities of life: food, clothing, and housing. But even here, there are ways to think about improving the service outcomes (nutrition, health, shelter) rather than simply increasing the throughput of material products. The West End Food Cooperative in Toronto is an example of a community-based enterprise bringing this ethos to the food supply chain.³²

The vision of the company is to offer a “thriving local community food culture that has a positive impact on the economy, environment and society and promotes a connection to a sustainable global food system.” It promotes local food security and fair prices for local producers. The co-op has recently opened a new local food hub — the first to be opened in almost 30 years — bringing locally-produced food directly into the neighbourhood.³³

When it comes to one of the other fundamental aspects of material prosperity — our need for shelter — there are also lessons to be learnt. Providing decent quality new housing, especially for the poorest in the community, must of course

³² <http://westendfood.coop/content/what-we-do> (accessed Oct 7, 2013).

³³ http://www.thestar.com/news/gta/2011/11/28/porter_changing_the_world_through_food.html (accessed Oct 7, 2013).

be a priority. But we should also be seeking to extend the service life of our buildings, improve their fabric, renovate and refurbish neighbourhoods in need of renewal: seeking to deliver housing services, rather than simply building for the sake of building.

Work carried out for the Sustainable Development Commission in the UK highlighted the multiple advantages of refurbishment and renovation over demolition and new build, in terms of time, cost, community impact, prevention of building sprawl, reduced energy use, and the protection of existing communities.³⁴ The UK company Urban Splash made its name through this kind of neighbourhood renewal, with high-profile refurbishment projects in areas often devastated by economic decline. A Canadian example of the same approach is the innovative Thompson Neighbourhood Renewal Corporation in Manitoba. Established in 2001, the Corporation's mission is "to assist community efforts to rebuild and revitalize neighbourhoods experiencing significant social, economic and physical decline within the city."³⁵

The idea of enterprise as service has a surprising applicability when it comes to thinking creatively about the green economy. Beyond our material needs, prosperity is as much about social and psychological functioning – identity, affiliation, participation, creativity and experience – as it is about material stuff.

Often of course, we try to employ material artefacts to satisfy these needs, with greater and lesser degrees of success.³⁶ But the needs themselves are not inherently material and it is mistaken to cast enterprise solely in terms of the throughput of material products. Rather we should construe enterprise in the green economy in terms of delivering the "human services" that improve the quality of our lives: health, social care, education, leisure, recreation, and the maintenance and protection of physical and natural assets.

As we have indicated in this section, the seeds for this new economy already exist in local, community-based social enterprise: community energy projects, local farmer's markets, slow food cooperatives, sports clubs, libraries, community health and fitness centres, local repair and maintenance services, craft workshops, writing centres, outdoor pursuits, music and drama, yoga, martial arts, meditation, hairdressing, gardening, the restoration of parks and open spaces.

Perhaps the most telling point of all is that people often achieve a greater sense of well-being and fulfilment, both as producers and as consumers of these

³⁴ For a summary of this evidence see Power 2010. A fascinating summary of 7 cities success in achieving urban regeneration is offered in the London School of Economics publication: *A Tale of 7 cities*. Online at: <http://eprints.lse.ac.uk/33118/1/Tale%20of%207%20cities.pdf>.

³⁵ For Urban Splash see: <http://www.urbansplash.co.uk/about-us/our-story> (accessed Oct 7, 2013). On the Thompson Neighbourhood Renewal Corporation see: [http://ccednet-rcdec.ca/sites/ccednet-rcdec.ca/files/ccednet/TNRC-E.pdf](http://ccednet-rcdec.ca/files/ccednet/TNRC-E.pdf) (accessed Oct 7, 2013).

³⁶ See eg Jackson 2009 Ch 6 for a more extensive discussion of this point.

activities, than they do in the time-poor, materialistic, supermarket economy in which much of our lives is spent.³⁷ Nor is it simply the outputs from these activities that make a positive contribution to flourishing. As we've seen above, the form and organization of our systems of provision also matters. Economic organization needs to work *with* the grain of community and the long-term social good, rather than against it.

In summary, this vision of enterprise really does offer a kind of blueprint for a different kind of economy. Enterprise provides for our ability to flourish. It offers the means to a livelihood and to participate in the life of society. It provides security, a sense of belonging, the ability to share in a common endeavour and also the opportunity to pursue our potential as individual human beings. And at the same time it offers a decent chance of remaining within ecological scale.

³⁷ See eg Castel et al 2011; see also: <http://www.thenews.coop/article/co-operatives-make-happy-place-work> (accessed Oct 28, 2013).

5. Jobs worth having

Work is more than just the means to a livelihood. It is also a vital ingredient in our connection to each other — part of the “glue” of society. Good work offers respect, motivation, fulfilment, involvement in community, participation in society and, in the best cases, a sense of meaning and purpose in life. These are some of the reasons why unemployment is to be feared and avoided — aside from the immediate and obvious threat to livelihoods.

This sense of work as a place of connection is particularly strongly reinforced when the organizational form of enterprise also encourages participation. Mutual or cooperative or employee ownership involves workers directly in the success of the enterprise and reinforces the workplace as a site of common endeavour. One of the clearest challenges for the green economy is to achieve high levels of satisfying employment.

Such insights into the role and nature of work are not new. Drawing on insights from Buddhist philosophy, the Indian philosopher Kumarappa argued that when the nature of work is properly appreciated “it will stand in the same relation to the higher faculties as food is to the physical body. It nourishes and enlivens the higher [self].” Picking up on the same theme, the economist E F Schumacher argued that “properly conducted in conditions of human dignity and freedom, work blesses those who do it and equally their products.”³⁸

By contrast, the conventional economic view sees work as a sacrifice of our time, leisure, and comfort; wages are a “compensation” for that sacrifice. This leads to perverse outcomes for both workers and entrepreneurs. As Schumacher points out, “the ideal from the point of view of the employer is to have output without employees, and the ideal from the point of view of the employee is to have income without employment.”³⁹

This perverse dynamic is internalized in the modern economy through the pursuit of labour productivity: the desire to continually increase the output delivered by each hour of working time. Rising labour productivity is often viewed as the engine of progress in modern capitalist economies. But the relentless pursuit of increased labour productivity also presents society with a profound dilemma. As each hour of working time becomes more “productive,” fewer and fewer people are needed to deliver any given level of economic output.

Put simply, ever-increasing labour productivity means that if our economies do not also continue to expand, we risk putting people out of work. Higher

³⁸ Schumacher 1973, p 38.

³⁹ Op cit p 39.

unemployment reduces spending power in the economy and generates rising welfare costs. Higher welfare costs lead to unwieldy levels of government debt. Higher sovereign debt can only be serviced, at least within the current financial system, by increasing tax revenues from future income.⁴⁰ Increased tax revenues depress spending power even further and so the cycle goes on. When economic growth is hard to come by, for whatever reason, the dynamic of rising labour productivity is a harsh mistress.⁴¹

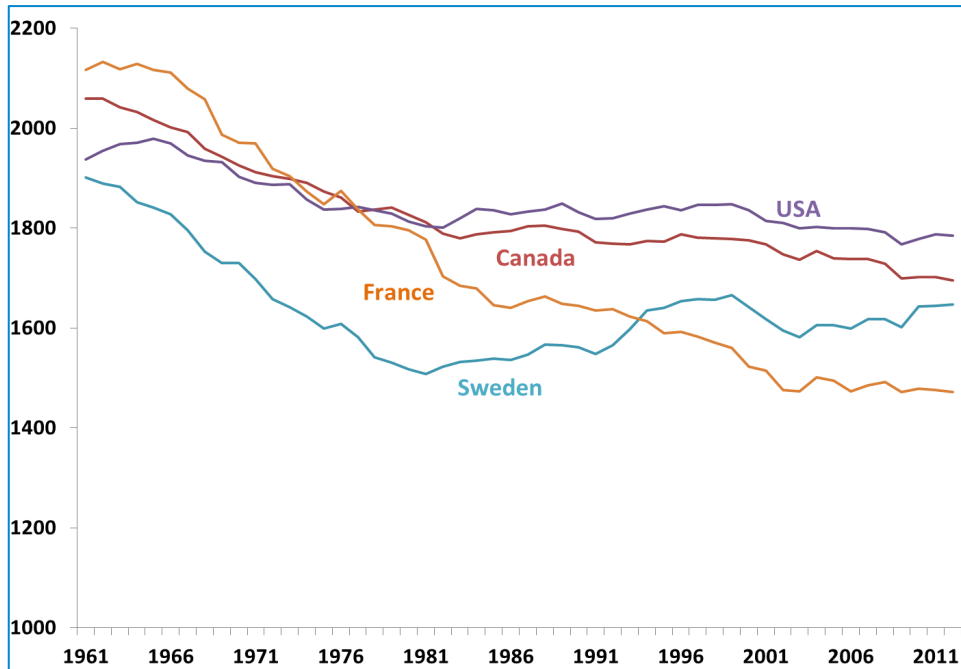
There are broadly speaking, two avenues of intervention through which to escape from this “productivity trap.”⁴² One is to accept productivity growth in the economy and reap the rewards in terms of reduced hours worked per employee. In other words, share the available work among the workforce. The second strategy is to ease up on the gas pedal of ever-increasing productivity. In other words, shift economic activity to more labour intensive sectors. Interestingly, both these avenues have some precedence in economic thought. Proposals to shorten the working week are enjoying something of a revival as a way of maintaining full employment with declining output. The idea has a surprisingly long pedigree. In an essay entitled *Economic possibilities for our grandchildren* published in 1930, John Maynard Keynes foresaw a time when we would all work less and spend more time with our family, our friends, and our community.

⁴⁰ In Section 7 we explore briefly an alternative view on this.

⁴¹ See Jackson 2009, Victor 2008 for fuller discussion.

⁴² See eg Jackson and Victor 2011.

Figure 4: Trends in working hours in Canada, France, Sweden and the US: 1961-2012



Source: Footnote 43

As it turns out, societies have often taken some of the economy’s labour productivity gains in the form of increased leisure time – a trend usually taken to represent a positive contribution to our quality of life (Figure 4). Working hours in the United States have declined by 8% since 1960. In France it’s over 30%; and in Canada the average working week has fallen by around 17% since 1960.⁴³ In the absence of these declines the rate of unemployment in these countries would have been much higher.⁴⁴ It may not be the workaholic’s choice to continue this trend even further. But as many recent commentators have pointed out, sharing the available working time by reducing working hours is an important strategy for ensuring that everyone has access to a livelihood, particularly when growth is hard to come by.⁴⁵

A telling example of the success of this strategy is the case of Trumpf, a machine-tool maker in the south German city of Ditzingen. The company managed to get through the financial crisis without laying off any of its 4,000

⁴³ Data from the OECD.Stat database, online at: <http://stats.oecd.org/Index.aspx?DatasetCode=ANHRS> (accessed Oct 15, 2013).

⁴⁴ See Victor 2008, pp 157-158

⁴⁵ See for instance: nef 2013. http://s.bsd.net/nefoundation/default/page/-/files/About_Time_conference_note.pdf (accessed Oct 15, 2013).

German workers, while the same company laid off 90 of 650 workers in the United States. The difference was that in Germany Trumpf could take advantage of government incentives to reduce worker hours rather than lay off people.⁴⁶

Here is an illustration of the influence of the wider institutional context on the possibilities at community level. Until recently no similar opportunity existed in the United States. But the example of Trumpf inspired a series of state-led initiatives to facilitate work share in the United States. The New York State Department of Labor's *Shared Work Program* is one of these. Companies have already been taking advantage of it. Among them is the New Buffalo Shirt Factory, a clothing manufacturer with 70 employees. The company has saved 25 jobs since it started participating in the program in 2010.⁴⁷

Work share makes good sense for both employees and employers. On the other hand, simple arithmetic suggests a second avenue for keeping people in work when demand is rising less fast. Reining back on the relentless increase in labour productivity offers a compelling option. If labour productivity is no longer continually increasing, and possibly even declining, then the pressure on jobs is considerably lower. By shifting to a lower productivity economy we have, within our grasp, the arithmetical means to maintain or increase employment even as the economy ceases to grow.

If this option sounds perverse at first, it is largely because we have become so conditioned by the language of efficiency. Output is everything. Time is money. The drive for increased labour productivity occupies reams of academic literature and haunts the waking hours of CEOs and Finance Ministers across the world. Quite apart from this ideological tenacity, it's our ability to generate more output with fewer people that's lifted our lives out of drudgery and delivered us the cornucopia of material wealth — iPhones, hybrid cars, cheap holiday flights, plasma screen TVs — to which we — in the rich world — have become accustomed, and to which those in the poor world aspire.

Leaving aside here momentarily the environmental impacts of this massive expansion in material throughput, it is clear that rising labour productivity has in some cases made our lives definitively better. At least in the short term. Who now would rather keep their accounts in longhand, wash hotel sheets by hand, or mix concrete with a spade? Between the backbreaking, the demeaning, and the downright boring, increased labour productivity has a lot to commend itself.

But there are places where chasing labour productivity growth makes much less sense. Certain kinds of tasks rely inherently on the allocation of people's

⁴⁶ See: <http://www.nytimes.com/2010/08/04/business/global/04dmark.html?ref=business&r=0> (accessed Oct 15, 2013).

⁴⁷ Service Canada also has a Work-Sharing Program, for details see: http://www.servicecanada.gc.ca/eng/work_sharing/ (accessed Oct 15, 2013); for more details of the United States state-led work-share initiatives see: <http://blog.intuit.com/employees/prevent-layoffs-by-starting-a-work-sharing-program> (accessed Oct 15, 2013).

time and attention. The care and concern of one human being for another, for instance, is a peculiar “commodity.” It cannot be stockpiled. It can be degraded through trade. You cannot substitute away from it. It is not deliverable by machines. Its quality rests primarily on the attention paid by one person to another.⁴⁸

Even to speak of reducing the time involved is to misunderstand its value. Yet this is what the conventional economy continually seeks to do, even in those sectors which rely inherently on human care and attention to achieve their goals. In doing so, we undermine not only the value of the care but the experience of the carer. Compassion fatigue is a rising scourge in a health sector hounded by meaningless productivity targets. Health services are often delivered locally. But the conditions under which community health operates are invariably framed at the national level.

The caring professions are not the only ones to suffer at the hands of productivity goals. Craft is another. It is the accuracy and detail inherent in crafted goods that endows them with lasting value. It is the attention paid by the carpenter, the tailor, and the designer that makes this detail possible. Likewise it is the time spent practicing, rehearsing, and performing that gives art its enduring appeal.

What — aside from meaningless noise — is to be gained by asking the New York Philharmonic to reduce their rehearsal time and play Beethoven’s 9th Symphony faster and faster each year?⁴⁹ It is true that technological advances have made the appreciation of musical performances more accessible to more people. Yet the performance of music and the appreciation of that performance through various media rely inherently on the musician’s time and dedication to their art.

It may not have escaped the reader’s attention that the sectors we are describing here — care, craft, culture — are basically the same “human services” that sit at the heart of the vision of enterprise set out in the previous section. The service enterprise economy is one which inherently resists the productivity trap precisely because the value of the services provided by this sector are tied intimately to the contribution of people’s time, skill, and labour. It is a naturally employment-rich sector which contributes immensely both to individual well-being and to the vibrancy of our communities.

Here perhaps is the most remarkable thing of all: since these activities are built around the value of human services rather than the relentless throughput

⁴⁸ This is not to suggest, of course, that material and technical advances in the caring professions are insignificant. On the contrary, some of these represent a direct contribution to improved quality of care. Our point is only to note that these advances should not tempt us to sacrifice the quality of care that comes from the time spent by caregivers.

⁴⁹ Jackson 2012: http://www.nytimes.com/2012/05/27/opinion/sunday/lets-be-less-productive.html?_r=0 http://www.servicecanada.gc.ca/eng/work_sharing (accessed Oct 15, 2013).

of material stuff, they offer a half decent chance of making the economy more sustainable. As the Canadian Community Economic Development Network points out, the Thompson Neighbourhood Renewal Corporation's process of local engagement in urban renewal is "more labour intensive, but it brings people together and makes so much more possible." A similar advantage is claimed by the Manitoba BUILD program.⁵⁰

In short, achieving full employment in the green economy may have less to do with chasing after endless productivity growth and more to do with building local economies based around care, craft, and culture. And in doing so it may restore the value of decent work to its rightful place at the heart of society.

⁵⁰ <http://buildinc.ca> (accessed Oct 28, 2013).

6. Investing in the future

Investment may be the single most important element in the green economy: it embodies the relationship between the present and the future. The fact that people set aside a proportion of their income for investment reflects a fundamentally prudential aspect of human nature. We care not just about our present happiness but also about our future well-being.⁵¹ Prosperity today means little, as we have already suggested, if it undermines prosperity tomorrow. Investment is the vehicle through which we build, protect, and maintain the assets on which tomorrow's prosperity depends.

Of course it is always possible for this relationship between present and future to become distorted. We can become too short-sighted — both as individuals and as a society. We sometimes privilege risky speculation — practices which are fundamentally just gambling — over the investments that create and maintain solid, long-lasting physical and social and environmental assets. We may create rules that privilege existing asset holders at the expense of the poorest in society. Our investment architectures are sometimes so complex that it becomes impossible for individuals and communities to manage their own long-term financial security. We often set aside too little to protect the most important long-term assets of all: those provided by natural ecosystems.

It is important to understand both how these mistakes can become institutionalized and also how to correct them. Corrective measures at a federal or provincial level need to be complemented by workable alternatives that can return a measure of resilience to local communities. The green economy needs not just a coherent vision of sustainable investment; but a way of translating this vision into practice at community scale.

These reflections lead us towards two specific tasks. One is to articulate an appropriate portfolio for investment in the green economy. The second is to outline an appropriate financial framework to support this kind of investment. The current section is primarily addressed towards the former task, while the latter task is the subject of the next section. But before engaging in the job of developing an “investment portfolio” for the green economy — and illustrating it

⁵¹ It is interesting to note that prudential behaviour is not restricted to the human species. Many species exhibit behaviours which might broadly be regarded as investment behaviours. Beavers build dams; squirrels hoard nuts; camels store water. Each of these activities carries a current cost, but reaps future dividends. Nor is this behaviour restricted to mammals; nest-building is a basic activity for birds, bees, termites, ants, and wasps. Even plants invest: the energy that is required to produce brightly coloured flowers carries a vital return for plants in terms of pollination.

with examples at community scale — we outline very briefly the driving dynamic of investment in the conventional economy.

In simple terms, we can characterize “real investment”⁵² in the conventional economy as pursuing three main objectives. First, it aims to maintain (and where necessary replace or expand) the existing stock of fixed assets. Second, it attempts to improve the productivity of those assets — most often, as we have noted, through the pursuit of increased labour productivity. Finally, investment is directed towards the process of “creative destruction” identified earlier — the creation and recreation of new markets for new consumer products, the continual throwing over of the old in favour of the new.

Driving much of this behaviour is the profit motive itself. The setting aside of income for investment purposes is predicated (and indeed justified) on the expectation of financial returns in excess of the existing outlay. We shall have more to say about the profit motive in the following section. For now it is sufficient to note that profits depend crucially on the revenue from the sales of commodities.

In principle, these commodities could include services; and novelty could include social innovation: new and better health care; more participative education; more active community engagement. In practice, creative destruction has largely played out through product markets, with the mass throughput of material products playing a critical role in the profitability of investment — indeed, in the stability of the macro-economy as a whole.

In short, conventional investment strategy is a crucial part of the architecture of the *unsustainable* economy and offers little in the way of a reliable basis for the green economy.⁵³ To reiterate a point we made earlier, the green economy cannot simply be characterized as “more of the same with a smattering of clean-tech investments thrown in.” Certainly investments in low-carbon, resource light technologies will have a clear right to belong in a green investment portfolio. But a more thorough rethink of the portfolio as a whole is also needed.

The starting point for this rethink is to marry the simple idea articulated at the beginning of this section with the insights of previous sections. The overarching vision emerges in the form of three simple principles:

- Prosperity consists in our ability to flourish as human beings — now and in the future.
- Enterprise concerns the organization of economic services which deliver the capabilities we need to flourish.

⁵² As in Section 3, we distinguish “real investment” — as the flow of capital into fixed (physical) assets — from speculative financial investment — the trading of commodities, property, and financial assets. We explore this distinction further in Section 7.

⁵³ When, in addition, we consider speculative investment, conventional investment portfolios appear even more destructive, contributing not only to resource depletion and environmental degradation but even — as we say in the global financial crisis — to financial instability.

- Investment is the process of setting aside income in the present in order to maintain, protect, and enhance the assets from which future prosperity will flow.

This vision allows us first and foremost to identify the kind of assets (and the kind of enterprise) towards which we need investment funds to flow. The provision of our basic material needs is the baseline for prosperity. Beyond this baseline we should invest in health, in education, in social care, in leisure and recreation; in green spaces, lakes and rivers, parks and gardens; in community halls, concert halls, theatres, museums and libraries. The broad aim of this portfolio is to build and maintain the physical assets through which individuals can flourish and communities can thrive — with as little in the way of material throughput as possible.

An impressive example of this kind of approach in practice is to be found in the Cleveland Evergreen Cooperatives initiative. Developed initially out of an investment collaboration between Cleveland’s universities and hospitals, and modelled on the Mondragon cooperatives in Spain, Evergreen has emerged as a remarkable game-changer in the former “rust-belt” area, providing employment and livelihoods in regions devastated by the decline in manufacturing.⁵⁴

At the centre of the initiative is the Evergreen Cooperative Development Fund (ECDF), an innovative capital financing mechanism to support the investment needs of new and existing cooperatives. The ECDF allows lenders to diversify risk by investing in a portfolio of companies. The structure of the fund provides a critical advantage to the cooperatives — giving start-ups, or intrinsically lower-return businesses access to the same pool of capital as more established or intrinsically higher-return co-ops. In a speech to the National Community Reinvestment Coalition in March this year, the United States Federal Reserve Board Governor Sarah Raskin, described Evergreen as a “substantial positive development in the local economy.”⁵⁵

There’s an interesting feature of this kind of investment target. Many of the underlying needs are best articulated — and most effectively delivered — at the local level. Consequently, this investment strategy works best at community scale. Of course, it also requires appropriate financial vehicles to enable it to work effectively. We return to this point in the following section. We note here only that the rewards of engaging in such a strategy at community scale can include lasting benefits in terms of community regeneration, local self-reliance, and community resilience — over and above the prudential rewards of building and maintaining community assets.

⁵⁴ For more information see Capital Institute 2010; or visit the Evergreen website at: <http://evergreencooperatives.com/> (accessed Oct 15, 2013).

⁵⁵ <http://evergreencooperatives.com/2013/03/federal-reserve-board-governor-highlights-evergreen-cooperatives-as-substantial-positive-development-in-the-local-economy/> (accessed Oct 15, 2013). See also: <http://www.ncrc.org/> (accessed Oct 15, 2013).

Needless to say, very few — one is tempted to say not a single one — of the services on which prosperity depends can do away with material and energy inputs completely. Health care requires medicines and life-saving equipment. Education needs books and computers. Musicians need instruments. Gardeners need tools and fertilizers. Even the lightest recreation activities — dance, yoga, tai chi, martial arts — require an appropriately maintained space for interaction. More obviously, people need homes, clothes, nutrition, and mobility.

In other words, there is an irreducible material element even within the greenest economy and the most dematerialized vision of enterprise. This is where the strategy of investing in material and energy efficiency comes to the fore. The green economy really does need green investment — as it is conventionally conceived. These investments include the technological improvements in resource productivity, enhancements in energy efficiency, and the substitution of renewable energy for fossil-fuelled energy envisaged by UNEP and others.

As we saw in Section 4, many of these kinds of activities already exist at community scale. The success of local renewable energy providers and energy service companies depends on the provision of carefully structured, community-scale investments. As important as the service providers themselves are the investments in new technologies, new production facilities, and local infrastructure.

There are now numerous examples of investment in sustainable energy in practice. Triodos Bank — an innovative ethical bank founded in the Netherlands in 1980 — was one of the pioneers in this space. The bank currently finances over 300 local renewable energy projects in Europe that generate over 1600 megawatts of electricity.⁵⁶ An example at a smaller scale is Empower Community — a social enterprise investing in renewable energy in the UK housing market. A key feature of Empower Community is the way the fund reinvests profits from its investments back into the community.⁵⁷

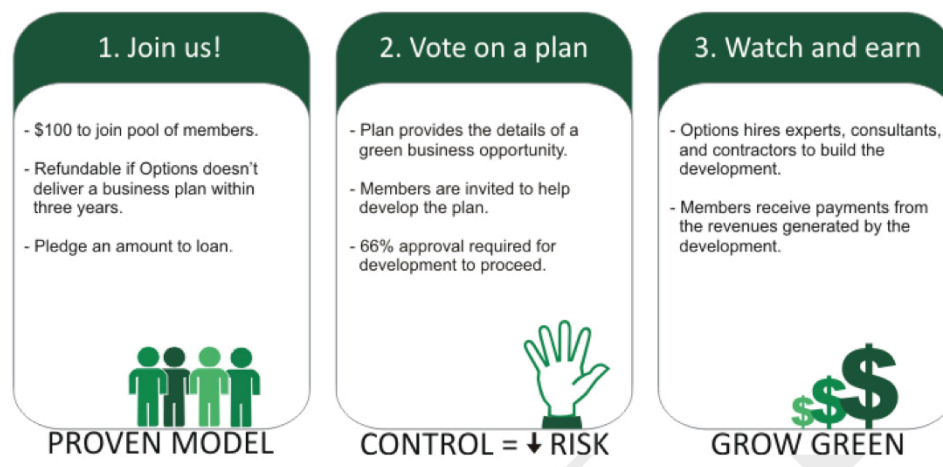
Closer to home is the innovative Options for Green Energy, an Ontario-based cooperative finance company that sells its members “community bonds” which are used to invest in renewable energy projects in Ontario.⁵⁸ The company benefits from the Ontario Green Energy Act of 2009 which introduced a feed-in-tariff for renewable energy. This tariff has facilitated a stable and predictable financial environment in which local investors can be assured of reasonable returns for the lifetime savings (Figure 5). Again, surpluses from the investments are recycled into the fund for future investment.

⁵⁶ <http://www.triodos.com/en/investment-management/impact-investment/looking-for-funding/renewable-energy/why-triodos/> (accessed Oct 7, 2013); an interesting feature of the Triodos Renewables Europe fund is that it pays no dividends. Profits each year are recycled back into the fund.

⁵⁷ <http://empowercommunity.co.uk/> (accessed Oct 15, 2013).

⁵⁸ http://www.optionsforgreenenergy.ca/how_it_works/ (accessed Oct 15, 2013).

Figure 5: Options for green energy — developing renewables through community bonds



Source: Footnote 58

One of the principal motivations for investing in renewable energy is the need to reduce the carbon emissions that contribute to anthropogenic climate change. In a sense, these initiatives are not just investments in the physical infrastructure of energy services, we could accurately say that they are also investments in the ecological asset provided by the climate itself. More generally, we could say that maintaining ecological assets requires investment.

Forests, grasslands, wetlands, lakes, oceans, soils, and the atmosphere itself are all essential in providing the services on which life itself depends.⁵⁹ The economic value of these services is difficult to calculate, but the integrity of the underlying ecological assets is integral to human prosperity. So at least some part of the portfolio of green investment must be directed towards the maintenance and protection of these assets. This principle lies at the heart of the green economy.

In some cases, it is a relatively easy principle to apply, because some of these investments provide secure conventional long-term financial returns. In the case of renewable energy, the returns come from the electricity delivered to people's homes. In the case of forestry investments, the return can come from the value of sustainably harvested timber. It can also come from the protection of herbal, medicinal plants harvested from the forest. And in protecting these assets,

⁵⁹ The most thorough attempt to establish the economic value of ecosystem services was the recent TEEB report (TEEB 2010).

forestry investments can also provide secure livelihoods for indigenous populations in vulnerable rainforest areas.⁶⁰

There are some thorny issues involved in creating financial markets around forestry (and more generally around land use) services. Not the least of these is the question of property rights. By attracting investment capital into ecological assets with long-term financial revenue streams, there are dangers that local people become displaced or disenfranchised. But with appropriate protection against these dangers, such investments can sometimes have real financial benefits all round.

ForestFinance is a German company offering a number of mechanisms through which committed long-term savers can accrue secure benefits from investment in tropical rainforests, while aiming to protect local livelihoods and harvest timber sustainably.⁶¹ Grasslands LLP is a United States-based company that invests in underperforming ranchlands in South Dakota. Using the Holistic Resource Management framework pioneered by Allan Savory, Grasslands aims to create meaningful employment and produce abundant, high-quality food, while revitalizing grassland on a wide scale.⁶²

In summary, investment in the green economy needs to be focused on the protection and maintenance of the assets on which future prosperity depends. The portfolio of green investment must of course include the low-carbon technologies and infrastructures typically associated with the green economy. But it must also include wider investments in resource productivity, in the protection of ecological assets, in the building of community infrastructures, and in the maintenance of public spaces. Investment is also essential to support the economic activities which deliver meaningful human services to society.

The impact on the productive capacity of the economy will differ markedly across these investment types. It is clear from the examples presented here that these investments sometimes offer the potential for rates of financial return consistent with conventional market expectations. Investments in resource productivity and energy efficiency, for example, are likely to have a positive impact on overall productivity. They won't necessarily bring preferential returns over conventional investments unless the relative prices of labour and materials

⁶⁰ His Royal Highness the Prince of Wales has been a long-term advocate of this approach. His Rainforests Project aimed to "help the world community recognise the true value of forests by identifying ways to value, and then pay for, the crucial 'ecosystem services' rainforests provide." <http://www.princeofwales.gov.uk/the-prince-of-wales/initiatives/princes-rainforests-project> (accessed Oct 7, 2013).

⁶¹ <http://www.forestfinance.de/> (accessed Oct 15, 2013).

⁶² For more information on ForestFinance see: <http://www.forestfinance.de/en/home/> (accessed Oct 15, 2013); for an explanation of the Grasslands Project see Capital Institute 2010. The underlying basis for the Grasslands project are the Holistic Resource Management principles set out by Allan Savory: http://www.ted.com/talks/allan_savory_how_to_green_the_world_s_deserts_and_reverse_climate_change.html (accessed Oct 15, 2013).

change substantially. But they will still provide solid investments for long-term saving.

Some investments in renewable energy will bring competitive returns in some market conditions. Others will only bring returns over much longer time frames than traditional financial markets expect. Investments in eco-system enhancement and climate adaptation might not bring conventional financial returns at all, even though they are protecting vital ecosystem services for the future and may also be contributing to employment.⁶³

What emerges from this exploration is that the conventional view of a straightforward relationship between investment expenditure and the productivity of the economy no longer holds in the same way for green investment. Simplistic prescriptions in which investment contributes to future productivity won't work here. The ecology of investment will itself have to change in the green economy. Investment in long-term, public goods will have to be judged against criteria other than financial market success. This may also mean rethinking the ownership of assets and the distribution of surpluses from them. In summary, the biggest challenge for this new portfolio of investment is the question of financing. It is to this subject that we now turn.

⁶³ Note, though, that this conclusion might change if the value of ecosystem services were included in the calculation — and perhaps also in the production function.

7. Making money work

So far, our report has concerned itself mainly with what is sometimes called the “real economy.” This term is often used to describe the patterns of employment, production, consumption, government spending and investment in the economy. The measure of overall activity in the real economy is the well-known Gross Domestic Product or GDP.⁶⁴ At the local or regional level, this number is usually called the Gross Value Added. Systems of national accounts measure GDP in monetary units — dollars in the case of the Canadian economy. But it is useful to distinguish the real economy from the financial or “money economy.”

The money economy is a term used to describe the wider set of financial flows on which the real economy depends. This wider set of financial accounts includes the flow of money into and out of different economic sectors, the processes of borrowing, lending, creating money (the money supply), and the changes in the financial assets and liabilities of different economic actors. These money flows are essential to the financing of investments in the real economy.

The money economy is far less familiar, even to politicians and mainstream economists, than the real economy and the GDP. However, the system of national accounts already includes vital information about these financial flows and even provides a full account of the balance sheets — financial assets and liabilities — of each sector, on an annual basis. Ignoring the information contained in these accounts was one of the decisive errors contributing to the financial crisis and subsequent global recession. The real economy appeared to be doing well and GDP growth looked strong in the run-up to the crisis. But the weakening of company balance sheets and the over-indebtedness of households in many OECD countries were a contributing cause of the fragility and eventual instability in the financial system.⁶⁵

It became apparent through the crisis that sustainability — indeed, basic economic security — depends on a healthy financial system. Prosperity itself depends on a properly functioning money system. Restoring stability to the financial system has to be an element in the green economy. Paradoxically, in the wake of the crisis, with wider financial markets still in disarray, prosperity becomes even more difficult to achieve. Lending constraints hinder green

⁶⁴ The GDP can be measured equivalently in terms of spending, income, or value added.

⁶⁵ The crisis affected banks first because they had extended very high levels of credit to people who could not afford to repay it; and had failed to maintain enough resilience in their balance sheets to protect themselves. In the language of financial markets, they were “over-leveraged.” When households began to default on loans, a rapid decline in the asset value of the banks in relation to their liabilities triggered a massive loss of confidence. One after another, the most vulnerable banks found their balance sheets “under water,” with liabilities vastly exceeding assets.

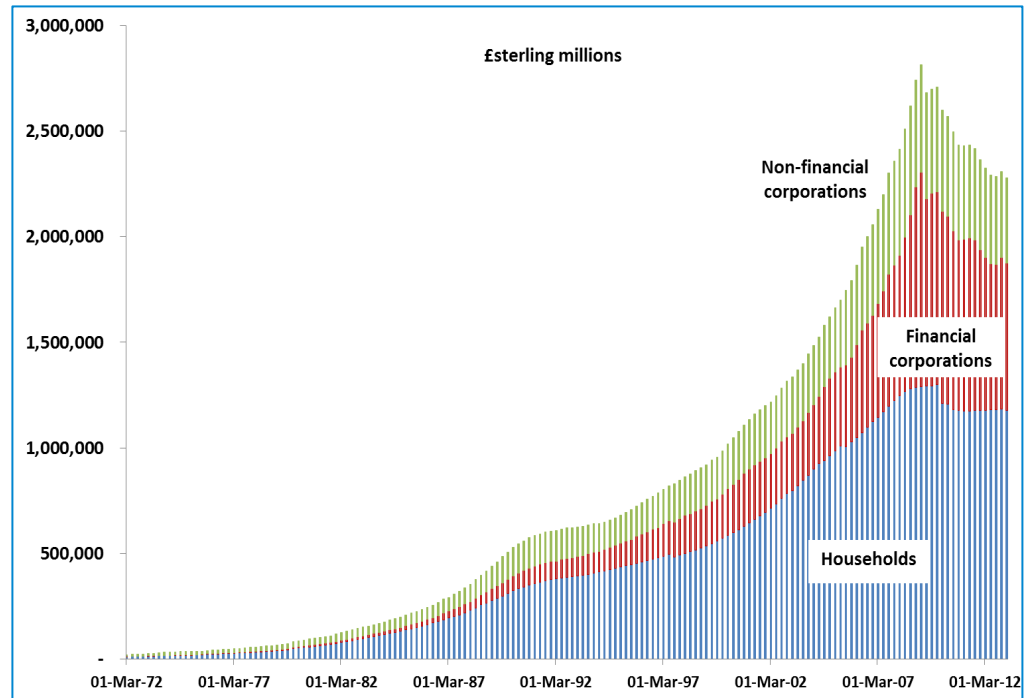
investment and undermine the quality of our lives and the resilience of our communities.

Later in this section we explore potential community-level responses to this dilemma. Before doing so, however, it is useful to highlight some salient features of the current organization of the money economy and tease out the implications for communities. A full exploration of the money economy must remain beyond the scope of this report. For non-economists, the real economy is complicated enough. The workings of the money economy sometimes elude the understanding even of professional economists.⁶⁶

Few economists foresaw, for instance, how the massive expansion of commercial debt-based money (Figure 6) could destabilize the money system as a whole. To many non-economists, the existence of a debt-based money system itself comes as a complete surprise. We tend to think of money as something printed (or brought into existence electronically) by the Central Bank more or less under the control of the government. The reality is that only 3% of the money supply in Canada is created in this way. Most money circulating in the economy today is created by commercial banks, almost literally ‘out of nothing’. When a bank agrees to create a loan to a business or a household it simply enters the amount as a loan on the asset side of its balance sheet and the same amount as a deposit on the liability side of its balance sheet. This deposit is then available to spend on goods and services in the economy. Banks create money by making loans.

⁶⁶ The reader interested in more detail on the workings of the money economy might usefully refer to several recent books in this field, among which: nef 2012, Jackson and Dyson 2012, Wray 2012.

Figure 6: Expansion of net lending in the UK: 1972 – 2012



Source: Bank of England Interactive Statistical Database

This process is said to “expand the balance sheet,” but it doesn’t in itself change the financial net worth (the difference between assets and liabilities) of the bank. Any change in the financial worth of the bank from making a loan depends on what happens after the loan is created: how much interest is charged on it, whether and when the loan is repaid, how much of the deposit is spent, where it is spent, where that money ends up in the economy. If the loan is repaid in good time at an interest rate favourable in comparison with market rates, this is likely to increase bank profits and boost its financial worth. If the borrower defaults on the loan without compensation, the transaction will leave the bank with “toxic” assets — loans that are non-recoverable — and might well reduce its financial worth.

There are a number of important implications of this debt-based money system. One of them is that the investments that are needed for the green economy must generally prove their credit-worthiness on entirely commercial grounds and must compete for capital with all sorts of commercial investments.

Some of these competing investments will offer highly attractive rates of return in the short term, even though in the longer term they are entirely unsustainable. So, for example, green investments must compete with financial speculation (a form of legalized gambling) in commodities, property, or financial

assets. They must compete with unsustainable consumer lending — in which repayment (and punishment for non-payment) is reinforced by legal institutions. They must compete with investments in dirty, extractive industries that degrade the environment, and in supply chains which are profitable only because they involve child labour.

The social benefits of green investment are rarely factored into the commercial market. Neither are the social costs of unsustainable investment (including the huge cost of unrestrained speculative trading). Worse still, these social costs are often ultimately borne by the taxpayers rather than the investors. The ethical basis of green investment only rarely attracts a premium. But there are one or two examples of banks who have sought out this premium or who are even prepared to lend at lower than market rates of return specifically to green or sustainable projects.

One such example is Triodos bank — already mentioned in Section 6. The bank's entire ethos is built around positively screening its portfolio to invest only in sustainable and ethical projects. In fact, Triodos has one striking difference from ordinary banks, aside from the fact that it only invests in sustainable businesses: it only lends money deposited in the bank by savers and investors. In other words, it doesn't engage in the kind of debt-based money creation described above.⁶⁷

Seeking funding from the ethical banking sector is one way in which communities can begin to finance the investments needed for a green economy. They might also look to attract public funding from federal, provincial, or municipal governments. The benefits to the nation as a whole from having strong, resilient and sustainable communities are self-evident and there are indeed federal and provincial government schemes to offer finance. A prime example of this kind of funder is Sustainable Development Technology Canada (SDTC), a not-for-profit organization funded by the federal government which aims to support innovative green technologies for climate change, clean air, water quality, and soils. Since 2002, SDTC has completed 21 funding rounds and allocated almost \$600 million in project finance to 245 projects.⁶⁸

Inevitably though, the ability of government to engage in community financing is dependent on its own fiscal position; this in turn depends in part on the performance of the national economy. When economic growth is harder to come by, for whatever reason, government tax receipts are lower and social security and employment insurance costs tend to be higher. Deficit spending is likely to rise; the national debt increases; and under the existing system, in which government itself must also compete for funding on commercial money

⁶⁷ <http://www.triodos.co.uk/en/about-triodos/who-we-are/mission-principles/why-different/> (accessed Oct 15, 2013).

⁶⁸ http://www.sdtec.ca/index.php?page=sdtec-profile&hl=en_CA (accessed Oct 15, 2013).

markets, the interest payments on the debt constrain government spending further.

This leads us towards another important aspect of the current financial system: the inextricable interrelatedness between public sector and private sector finances. For all its complexity, the money economy is bound by some surprisingly simple rules. The most important (and perhaps surprising) of these is that the sum of net private savings, net public savings, and net overseas (or external) savings is equal to zero.⁶⁹

This rule — sometimes called the fundamental national accounting identity — flows directly from the understanding that every financial asset has a corresponding financial liability somewhere in the economy. Any increase in the net financial wealth of the private sector must be accompanied by a corresponding decrease either in the net financial wealth of government or in the net financial wealth of the overseas sector. This rule is surprisingly informative about the available responses to fiscal constraint and the potential for green investment.

In a balanced economy, with exports and imports about equal, the national accounting identity informs us that net private savings are equal to the government deficit. Political calls to simultaneously increase private savings and reduce the government deficit are contradictory and misinformed. An improvement in the private position can only be achieved through a worsening of the public position and vice versa.

One of the reasons that the UK, for example, has suffered from what was effectively a triple dip recession, is that the government attempted a radical program of fiscal consolidation (mainly through spending cuts), at the same time as private sector institutions were trying to shore up their balance sheets (i.e. increase net savings). Not only did the strategy backfire in terms of sovereign debt reduction, it withdrew vital social investment from communities just when it was most needed. In a country such as Germany, with a strong export sector and a significant trade surplus, this strategy might indeed work. In a country with a long-running trade deficit, such as the UK (or worse still Greece) it is simply impossible for both the private and the public sector simultaneously to improve their net financial positions.

Surprisingly, these understandings about the monetary rules that govern the macro-economy have only recently (and only partially) made their way into mainstream thinking — too late for some countries to avoid severe economic hardship, possibly for decades. The implications at community level have barely

⁶⁹ The so called "national accounting identity" is usually expressed formally as $(S - I) = (G - T) + (X - M)$, where S = private savings, I = private investment, G = government spending, T = Taxation, X = exports and M = imports. S - I is then net private savings; T - G is net government saving (G - T is net borrowing); and M - X is net overseas saving.

yet been touched on — aside from a realization that when social investment is withdrawn by government in a misguided attempt to manage sovereign debt, it is the poorest local communities which often suffer first.

There are, nonetheless, useful things that can be learned here about community finances. Put simply, the national accounting identity reinforces the interdependency of financial actors in the economy. One sector's net assets are another sector's net liabilities. This realization has led some economists to criticize the economic behaviour of countries that develop and maintain consistent trade surpluses. Since a trade surplus in one place leads to a trade deficit in another, economic strength in one economy depends on and risks perpetuating economic weakness in another. Long-term stability is best maintained through a relatively balanced global economy in which no single country or region accumulates high surpluses or deficits, at least over the long term.⁷⁰

Though there is no formal equivalent to the national accounting identity at the local level, the same broad principle might be said to hold — namely that regions and communities should aim for balanced trade positions. This principle would certainly accord with one of our core principles for the green economy. Social justice — an equitable and fair distribution of access to goods and services — is the basis for shared prosperity. Prosperity in one region at the expense of high levels of indebtedness in another flies in the face of social justice and has no place in a green economy.

Beyond this “rule of thumb” for balanced trade at community scale, we can also say something about the balance between private and public finances. Once trade is more or less balanced, the accounting identity informs us that net private sector savings are more or less equal to the net public sector deficit. The only way to avoid a rising public sector debt (i.e. consistent public sector deficits) is to avoid excessive accumulation of private financial assets (i.e. consistent positive private net savings).

Again this point is reinforced by considerations of social justice. It is almost tautological to say that it is the richest in society who are most easily capable of achieving high levels of net financial savings and accumulating net financial worth. Public debts (and the interest on them), on the other hand, are paid by every single taxpayer, rich and poor alike. The possibility that private net financial wealth can only be achieved at the expense of net public financial debt puts an uncomfortable moral frame around the accumulation of financial wealth.

⁷⁰ This is particularly true in a region with a single currency or a fixed currency regime as George Soros has pointed out in the case of Germany: <http://www.reuters.com/article/2010/06/15/uk-britain-soros-idUKTRE65E5JT20100615> (accessed Oct 7, 2013).

This is particularly true in a monetary system in which sovereign debt must be financed from open money markets at commercial interest rates. There is a clear risk that the costs to the taxpayer of maintaining the public debt are paid to precisely the people who benefit most from its existence. The combination of a debt-based money supply and an accumulation of private financial assets is deeply regressive. It also makes financing green investment very difficult.

On the other hand, there are some clear signals here about the appropriate direction to turn to improve the situation. Here we highlight three particularly important social innovations which are supported strongly by this analysis. The first is impact investing — the reinvestment of private net savings into the green economy. The second is community banking and credit unions — the implementation of local savings and investment vehicles that plough benefits directly back into the community. The third is the reconfiguring of the money supply itself, reclaiming control of the money supply from commercial interests and returning it to either the public sector (government) or the community.

The good news is that there are positive examples in support of each of these innovations. Impact investing — the channelling of investment funds towards ethical, social, and sustainable companies, technologies and processes — is an increasingly important element in the architecture of the green economy. In the past this kind of investment was seen more as a form of philanthropy. But as the Capital Institute recently remarked, it should be seen as a vital complement both to philanthropy and to government funding: “a way to leverage secure philanthropic and public sector dollars, while harnessing the power of social entrepreneurs and market-based solutions to solve some of the world’s most intractable problems.” The Patient Capital Collaborative is an innovative United States-based initiative to help “angel investors” nurture and fund start-up companies aiming to have a positive social and environmental impact in the world.⁷¹

The MaRS Centre for Impact Investing is a Canadian initiative which aims to tackle social and environmental problems in Canada through social finance. The work of the Centre builds on a landmark report from the Canadian Task Force on Social Finance entitled *Mobilizing Private Finance for Public Good*. The Task Force called on governments, policy-makers, and investors to enhance social finance at provincial and community scale and offered several clear recommendations as to how this might be achieved including:

- establishing a federally supported Canada Impact Investment Fund;
- exploring the opportunity to mobilize pension funds in support of impact investing;

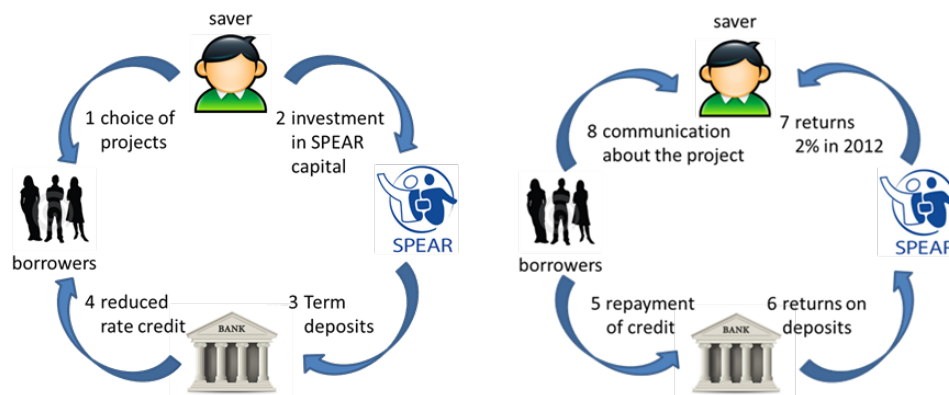
⁷¹ See Capital Institute 2012.

- developing new bond and “bond-like” instruments applicable to social investments at community scale;
- ensuring that charities and non-profits can raise funding, and exploring new corporate forms for social enterprises; and
- establishing a Tax Working Group to incentivize investors to provide low-cost, “patient” capital.

They also urged provincial governments to establish impact investment funds where these did not already exist. At the very local level, this kind of initiative begins to meet the second of our highlighted social innovations. Community banking is about mobilizing the savings of ordinary people at community level to provide investment funds for social or environmental finance. Community banks allow people to invest in their own community — for example in low-carbon energy, or in community amenities, and at the same time ensure that the returns from those investments remain within the community.

A fascinating example of small-scale peer-to-peer lending for social and ecological projects is provided by SPEAR — a French savings intermediary which aims to facilitate transparent, responsible investment (Figure 7). Savers are able to choose the projects in which they want to invest and receive information from the projects themselves as they progress. The average return to savers during 2012 was 2%.⁷²

Figure 7: SPEAR – facilitation of small-scale peer-to-peer lending in France



Source: Footnote 72

A similar example from North America is the Unified Field Corporation — a California-based community banking initiative. Its Regenerative Communities Initiative develops financial plans for sustainability projects in nine different

⁷² <http://www.spear.fr>. (accessed Oct 2, 2013).

areas including organic local food systems, water quality, renewable energy, mobility, affordable green housing, education, and the arts.

Perhaps the most popular model for community investment is the credit union – cooperative financial institutions in which individual members pool their savings to provide loans to other members. A typical Canadian example is the Ontario-based Alterna Savings, formed in 2005 following the merger of CS Coop and the Metro Credit Union.⁷³

Though subject to many of the same regulations as banks, credit unions are typically smaller, more local, and designed specifically to be non-profit making institutions. They therefore offer a particularly appropriate vehicle for green investment at community scale and are beginning to be adopted for this purpose. Credit Union Central of Canada recently released a position statement on the greening of credit unions in Canada in which it called for a commitment to building sustainable communities, in particular through fostering social inclusion and encouraging environmental sustainability. A number of Canadian credit unions have investment programmes and community grant-making schemes geared towards the green economy.⁷⁴

Our final suggestion for leveraging finance towards green investment at community scale concerns the money supply itself. This might seem at first sight a rather intractable aspect of the existing money system. However, there are some rather strong arguments in favour of changing the existing debt-based money system and returning a greater degree of control to the government. Some of these arguments have a surprising pedigree.

The so-called Chicago plan – which calls for 100% backing of deposits with government-issued money – was first put forward in the 1930s and supported most notably by the distinguished American economist Irving Fisher. The idea has been revived in a working paper from the International Monetary Fund which points to several advantages of the plan including its ability to better control credit cycles, eliminate bank runs, and dramatically reduce both government debt and private debt. In addition, returning control of the money supply to the state would allow the government to invest directly in communities in exactly the way highlighted in Section 6, without punitive interest payments.⁷⁵

Obviously this strategy lies outside the capacity of individual communities to achieve. It would require brave political leadership at the federal level to regain public control of the money supply. Nonetheless, it is clearly a strategy that requires public support which could quite reasonably be gathered first at the community level.

⁷³ <https://www.alterna.ca/AlternaSavings/AboutUs/Community/> (accessed Oct 15, 2013).

⁷⁴ One example is the Manitoba based Assiniboine Credit Union: <http://www.assiniboine.mb.ca/My-Assiniboine/About-Us.aspx> (accessed Oct 15, 2013).

⁷⁵ Benes and Kumhof 2012.

Moreover, the question of loosening the grip of profit-making institutions on the supply of money suggests another strategy for financing innovations in the green economy with a rather long pedigree: the creation of local currencies. Local exchange and trading systems (LETS) have emerged over the last few decades as an alternative to mainstream currencies. One example is the BerkShares scheme providing local currency to the Berkshire region of Massachusetts.⁷⁶ There are now over 40 Canadian LETS schemes.

Peterborough LETS was established in 1994 to provide a currency basis for the exchange of local goods and services in the Peterborough, Ontario area. The currency of the scheme is called the “green dollar” and can be used as partial or full payment for local services. When participants trade in the scheme they are recorded as being either “in credit” or “in commitment.” When they are in credit they have green dollars to spend in the community. Being “in commitment” means making a pledge to provide goods or services equivalent in value to those that have been used. Commitments are not debts however, in the conventional sense: no interest is ever charged.⁷⁷

It is an open question whether LETS can really leverage sufficient levels of capital to create green economies at community scale. There are certainly some people who regard these local currencies as offering the potential to create more independent, resilient, and sustainable communities, particularly in the face of difficult – and potentially unstable – conditions in financial markets. But it would be foolish to be led, by romantic notions of local self-reliance, away from the need to reform structural institutions at the wider level.

What is also unclear is the extent to which such examples can be scaled up (either in scope or in number) to form the basis of a genuine transformation of the wider financial system. What we have attempted to show here is that these kinds of local initiatives are clearly consistent with our findings about financial architecture at the macroeconomic level. They point the way towards more far-reaching changes; they also depend to some extent on broader system-level change for their success. We have also stressed here the legitimate role for community in campaigning for such change.

Irrespective of these considerations, it should be clear from this section that the green economy demands a different financial landscape from the one that led to the financial crisis of 2008/9. Fiscal, sectoral, and trade imbalances impede green investment and stand in the way of shared prosperity. Reforming this system is vital. Long-term security has to be prioritized over short-term gain. Social and ecological returns must be factored into investment decisions alongside conventional financial returns. Improving the ability of people to invest their savings locally, to the benefit of their own community, is paramount.

⁷⁶ <http://www.berkshares.org/heroes/mohicans.htm> (accessed Oct 15, 2013).

⁷⁷ <http://ptbolets.50webs.com/greendollars.html> (accessed Oct 15, 2013).

In short, reforming capital markets is not just the most obvious response to the financial crisis, it is also an essential foundation for a new green economy at community scale.

8. Building sustainable communities

The broad aim of this report was to explore the implications of emerging ideas about the green economy as they apply to local communities. The starting point for this exploration was a vision of prosperity as a shared endeavour: the ability to live well on a finite planet. In contrast to contemporary notions of prosperity cast in terms of individuals' short-term access to material abundance, we have highlighted (Section 2) both the shared, social dimensions of prosperity and the importance of longevity over time. Prosperity today is an empty promise if it consistently undermines the conditions on which prosperity tomorrow depends.

Our report then turned its attention to the demands that this vision of prosperity places on the economic structure and institutions of the green economy (Section 3). We outlined briefly the demands of achieving a green economy and contrasted this with some contemporary framings of the green economy debate. Four specific features of the green economy emerged from this exploration:

- the nature of enterprise in delivering the services that maintain and improve our quality of life (Section 4);
- the place and quality of work in people's lives (Section 5);
- the role of investment in protecting and maintaining the assets from which future services flow (Section 6); and
- the structure of the money economy in which savings, investment, and debt are negotiated (Section 7).

We examined each of these four key elements of the green economy in turn, teasing out the institutional implications at the scale of the community, and offering numerous illustrations from local examples and case studies. Together these explorations provide a remarkably coherent vision for the green economy at community scale.

It will not have gone unnoticed, however, that many of the interventions envisioned in this report cannot be implemented at will without more far-reaching changes in the broader political and economic framework. The question of governance, broadly defined, becomes critical to the delivery of the green economy. In this final section of the report we therefore address some of the challenges of governance in relation to the green economy, particularly at community scale.

Much of the motivation for exploring the green economy comes from recognizing the growing impacts of humans on the biosphere, globally and regionally. Some of these impacts, such as climate change, arise from the

increasing use of fossil fuels and efforts to obtain them from remote and risky locations in oil sands, deep rock formations, and under the sea. Other impacts, though often ubiquitous in the sense that they are happening all over the world, are nonetheless local in impact. Scarcity of fresh water is one example. Urban air pollution is another. The speed and scale of losses in biodiversity has both local and global impacts.

All of these problems are ultimately experienced by people living in communities, even though they cannot be solved entirely by action at the community level. Wider levels of government play a key role in framing the issues and setting the agenda. To a large extent, government determines which policy issues are up for discussion and which are not. For example, it has been known for decades that investment in transit has lagged behind development in the Greater Toronto Area to such an extent that in 2013 the average commuting time in the area is among the highest in North America.⁷⁸ But only very recently has transit become an expressed concern of government and a matter of considerable political and public debate.

Exploring these challenges through the lens of human behaviour reveals a complex and outwardly intractable policy terrain. People are often locked in to unsustainable patterns of production and consumption through a complex mixture of factors. Some factors are institutional, some economic, some have to do with infrastructure or lack of infrastructure, and some are social or psychological in nature.⁷⁹

The rhetoric of “consumer sovereignty” does not help much here because it regards choice as individualistic and fails to unravel the social, psychological, and institutional influences on private behaviours. Some behaviours are indeed motivated by rational self-interest. But conventional responses neither do justice to the complexity of consumer behaviour nor exhaust the possibilities for policy intervention in pursuit of social change.

In short, a concerted strategy is needed to make change possible: ensuring that incentive structures and institutional rules favour the green economy; enabling access to appropriate infrastructures, technologies, and opportunities; engaging people in initiatives to help themselves; and exemplifying the desired changes within government’s own policies and practices. As an Appendix to this report we include a preliminary inventory of policy levers at municipal, provincial, and federal levels which could aid the transition to a green economy at community scale. We illustrate these suggestions with examples drawn from policy and practice. A very useful mapping exercise (Figure 8) including

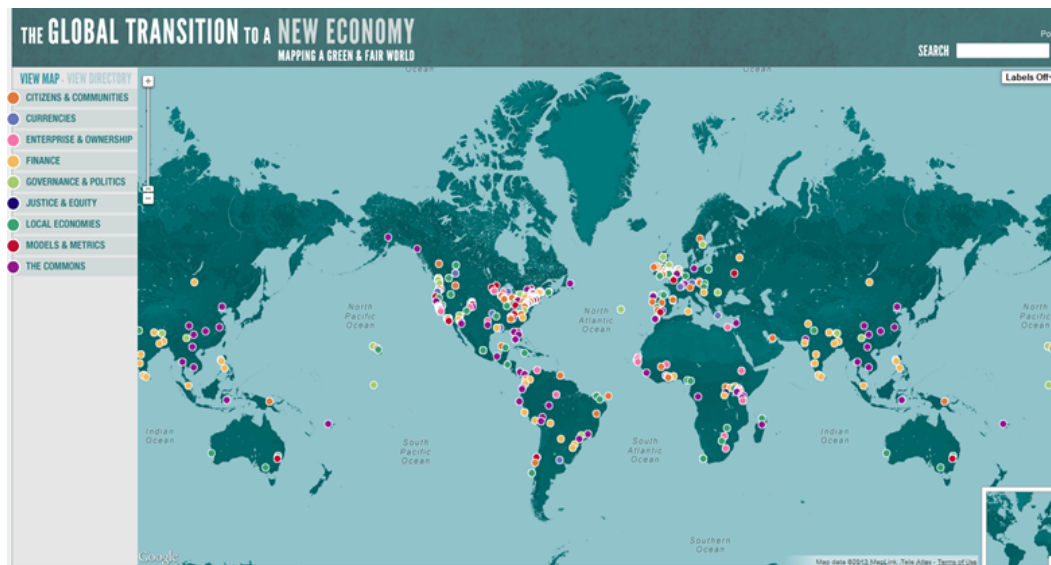
⁷⁸

http://www.thestar.com/news/canada/2013/06/26/statistics_canada_toronto_commuters_face_longest_commutes.html (accessed Oct 15, 2013).

⁷⁹ See Jackson 2005, 2011 for a detailed discussion of the role of government in achieving pro-environmental social change.

numerous examples of green economy initiatives can be found at:
<http://gtne.org>.

Figure 8: Mapping the green economy



Source: <http://gtne.org>

These examples illustrate that a creative approach to the green economy has a number of different policy avenues to consider. These include the influence of the state on:

- incentive structures (taxes, subsidies, penalties);
- facilitating conditions and situational factors (access to infrastructures for recycling, public transport, etc);
- institutional context (rules, regulations, market structures);
- social and cultural context (strength of community, family stability, etc);
- business practices and their impact on both consumers and employees;
- communities ability and autonomy to help themselves; and
- government's own environmental and social performance.

It is important to note here that government's role as lawmaker is not confined to punitive regulation. As we saw in Section 5, changes in labour law to incentivize employers and give employees rights to shorter hours can be critical in providing decent work and maintaining high employment levels. Of particular importance to the green economy is government's role in financing investments in infrastructure with long-time horizons and significant non-financial returns. This challenge necessarily lies beyond the scope of individual communities to achieve in isolation. A further task for government lies in the coordination of

multiple communities, for example, in the implementation of programs for developing renewable energy or reducing material throughput.

All of this supposes, of course, that government itself is willing and able to act in pursuit of change. In the absence of such willingness there may be little that communities acting on their own can do to resolve some of the institutional roadblocks. Many key economic decisions that affect communities are taken at a larger scale, not infrequently beyond the direct control of individual national governments. Global companies can direct their investment wherever they choose. Communities can exert some influence through land use planning to determine where certain activities cannot happen, and provincial and municipal governments can offer incentives and inducements to attract investment. But they cannot oblige private corporations to invest. They are often forced into competition to make themselves more attractive than competing locations. This may serve the interests of the corporations but not necessarily those of communities, especially those wishing to develop green economies.

The emergence of global corporations with financial resources to match or even surpass those of governments has changed the way we think about the relationship between people, their communities, their governments, and the economy. For well over a century some scholars and political commentators have recognized that political and economic systems are intertwined. In communist and fascist states this is obvious, since it is deliberate. In capitalist states it is less so. Many mainstream economists like to promulgate the fiction that governments establish policy which the private sector follows. Little is said about the capture of government agencies by the groups they are supposed to regulate. Not much attention is given to the impact of lobbying on government policy or on the effects of giving public servants experience in the private sector and vice versa. Indeed, both are encouraged.

The language of business has infiltrated the public sector. Ministries have “business plans,” stress “core competencies,” and serve “clients.” Influence in the other direction is less obvious. Some private corporations have “sustainability plans,” pursue the “triple bottom line,” and conduct themselves in a “socially responsible manner.” But sustainability in this framing is first and foremost about businesses or communities themselves rather than the wider systems of which they are a part. The triple bottom line works well as long as the financial bottom line is not compromised, and social responsibility is not constrained by corporate responsibilities to meet shareholder and market expectations for profits.

The question therefore arises as to what are the limits for green economy at community scale imposed by the political and economic systems in which these communities are situated. This question cannot be answered in the abstract. Taken to extremes it might appear that nothing useful can be accomplished at

the community level without far-reaching changes provincially, nationally, and globally. But it would be wrong to suppose that communities are impotent in the face of pressures to change. Action at the community level can stimulate changes at provincial and national levels either by example or by exerting political pressure, or both. The increasing use of social media has shown how potent local pressure can be by giving voice to the silenced, promoting social inclusion, and instigating change.⁸⁰

It is clear that communities do change, sometimes extensively, over time. As we showed in Section 2, changes can be guided by the interests of local communities and progress can be measured. Air quality has improved in some places, recycling rates have risen slowly, water quality is better. Admittedly, it is not all good news. Unemployment rates are high, especially among the young, and income and wealth inequality is rising. Rural communities have changed as well. Family farms are in decline, genetically modified crops and animals pose new threats to ecological integrity, and native biodiversity is under threat.

At the same time there is growing recognition of the “environmental goods and services” provided free of charge by natural systems. There are increasing efforts to protect rural areas from further encroachment by urban sprawl; the establishment in 2005 of the Ontario greenbelt is just one example.

The extent of the wider system changes needed to implement successful green economies is a matter for further elaboration. In our view, this debate should be firmly grounded in an improved understanding of the interplay of national economic and financial systems and their multi-faceted dependency on the biosphere. Such an understanding can be improved by a greater appreciation of the impact of change at the national and international levels on communities and also of the role of communities in bringing about change at these higher levels. It is towards this end that we have written this report.

Admittedly, the challenges of implementing the green economy at community scale are significant. The apparent intractability of human behaviour is in part a function of the policy model which has dominated conventional thinking on pro-environmental and pro-social change. But the evidence suggests that this model is inaccurate. Despite the rhetoric of modern “hands-off” governance, policy intervenes continually in the behaviour of individuals both directly (through taxes, regulations, and incentives) and (more importantly) through its extensive influence over the social and institutional context.

Governments are not just innocent bystanders in the negotiation of economic progress. They influence and co-create the culture of change in a variety of ways. In some cases, this influence proceeds through specific interventions — such as the imposition of regulatory and fiscal structures. In other cases it proceeds

⁸⁰ <http://www.guardian.co.uk/world/2013/jun/18/brazil-protests-erupt-huge-scale> (accessed Oct 15, 2013).

through the *absence* of regulations and incentives. Most often it proceeds through a combination of the ways in which government intervenes and the ways in which it chooses not to. As this review has attempted to demonstrate, a genuine understanding of the social and institutional context of the green economy opens up a much more creative vista for policy innovation than has hitherto been recognized. Expanding on these opportunities is an urgent responsibility of government.

In summary, it might be tempting to conclude that transforming local economies is beyond the power either of individuals, or of communities, or indeed of government itself. In our view, this conclusion would be mistaken. We have argued here, first, that there is a meaningful concept of the green economy that has clear relevance at community scale. In addition, we have shown that this concept has specific implications for how enterprise is conceived, how work is organized, how investment is structured, and how the money system is organized in the service of society. We have argued that these concrete proposals for change are not only implementable, but are already in many places actually being implemented. We have demonstrated how these kinds of changes are already improving the quality of people's lives and increasing the resilience of their communities.

Clearly, there is no silver bullet, no universal fix that will easily transform communities for the better. But identifying and implementing action for change is never in reality so simplistic. Rather the points of intervention will be diverse and depend both on the needs of the community and the skills and opportunities of those involved.

For some, the route to implementation may involve setting up a local food cooperative or improving the quality and quantity of urban gardens. For others it might mean establishing a community-based renewable energy project. For entrepreneurs, the process may start with a simple inquiry into the sustainability of the supply chain or the social value of the product. For teachers, it might involve changes in the curriculum. For health professionals, it might mean getting involved in community health. For investors, it might start by drawing a line in the sand: shifting money from speculative or environmentally destructive portfolios towards positive investments in change. Individual choices about what to buy, or how to travel, or where to save have cumulative impacts on the boundaries of possibility. For the activist, change might mean protest; for the policy-maker it may involve painstaking reform.

For academic economists, the process of change might well start by asking the simple question: how does an economy work when it isn't being driven by relentless growth in material consumption? This was the question we asked ourselves several years ago and to which we have dedicated much of our work together. We are still some way from definitive answers to that question, but the

lessons we have learned along the way have already been useful — not least in developing the arguments in this report. In the meantime, we count ourselves lucky that the work itself is not only essential but intellectually fascinating. We look forward to reporting on this broader task in more detail later.

Appendix: Levers for change

This Appendix sets out a number of different kinds of policy levers relevant to the implementation of the green economy. Some of these are specifically local initiatives or instruments effecting change directly at the local level. Others are applicable across the breadth of the economy as a whole and change the way, for example, that business operates or that banks are regulated. The list is by no means exhaustive but provides the foundation for a “clearing-house” of initiatives on the green economy that could be expanded and maintained in the future. It is divided into seven subsections relating to enterprise, employment, green investment, the protection of ecological assets, changing the financial system, measuring change, and encouraging participation.

- Supporting the legislative base for community-based enterprise:
 - Nova Scotia Community Interest Companies Act – a legislative base for enterprises serving the community;
http://nslegislature.ca/legc/bills/61st_4th/1st_read/b153.htm;
 - UK Community Interest Companies Act 2005 – facilitating the formation of community interest companies:
<http://www.bis.gov.uk/cicregulator>;
 - Canadian Cooperative Association: developing and promoting cooperatives and credit unions: <http://www.coopscanada.coop/>;
 - Quebec Social Economy Bill proposing support for social economy enterprises: <http://ccednet-rdec.ca/en/node/11761>;
- Enhancing the quality and availability of employment:
 - New York State Shared Work Program
<http://www.labor.ny.gov/ui/dande/sharedwork1.shtm>;
 - Service Canada’s work sharing program:
http://www.servicecanada.gc.ca/eng/work_sharing/;
 - Poverty and Employment Precarity in Southern Ontario (PEPSO) – campaigning for greater security in employment: <http://pepso.ca/>;
 - National Care Forum (UK): Promoting wellbeing in the care profession: <http://www.nationalcareforum.org.uk>;

- Delivering financial support for green investment:
 - Ontario Feed-in-Tariff – subsidising the supply of renewable electricity in Ontario: <http://fit.powerauthority.on.ca/what-feed-tariff-program>;
 - SocialFinance – an online community and information hub for social finance and impact investment in Canada: <http://socialfinance.ca/about>;
 - Options for Green Energy – a network of cooperatives involved in renewable energy investment: <http://www.optionsforgreenenergy.ca/>.
 - The Patient Capital Collaborate – a collaborative venture fund for steering and coordinating impact investment: <http://www.capitalinstitute.org/node/673>;
 - Green Investment Bank (UK) – dedicated loan funding for green investment: <http://www.greeninvestmentbank.com/>;
- Protecting and enhancing ecological assets:
 - Environment Canada’s “conservation easements” – providing tax benefits to landowners to encourage ecological conservation on their land: <http://www.ec.gc.ca/Publications/>;
 - Ontario’s Greenbelt: supporting healthy communities across by curbing urban sprawl and preserving natural heritage: <http://www.mah.gov.on.ca/Page187.aspx>.
- Changing the financial system:
 - Positive Money – campaigning for a sustainable money supply: <http://www.positivemoney.org/>;
 - International Monetary Fund – reviewing alternatives to bank credit creation: www.imf.org/external/pubs/ft/wp/2012/wp12202.pdf;
 - Global Alliance on Banking Values – encouraging ethical investment: <http://www.gabv.org/our-news/value-based-banks-issue-berlin-declaration-to-transform-the-banking-system#.UW6W7sqNctY>;
 - LETS linkup – coordinating Local Exchange and Trading Systems: <http://www.lets-linkup.com/77-Canada.htm>;
 - Berkshares – local currency for the Berkshares region: <http://www.berkshares.org/about/index.htm>;

- Measuring change:
 - Canadian Index of Well-being: measuring change in key social and environmental variables: <https://uwaterloo.ca/canadian-index-wellbeing/>;
 - City of Calgary – measuring Calgary’s Ecological Footprint: <http://www.calgary.ca/UEP/ESM/Pages/State-of-the-Environment/Land/Ecological-footprint.aspx>.
- Encouraging participation:
 - Transition Town Peterborough – securing food, water, energy, culture and wellness: <http://transitiontownpeterborough.ca/>;
 - Global Transition to a New Economy – mapping a green and fair world: <http://gtne.org>.

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