

Green Economy 2013

A Strategic Briefing on the State of Play
in the Global Transition

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About AtKisson Group

The AtKisson Group is one of the world's leading sustainability knowledge and consulting networks and has been a pioneer and innovator in the field since it was founded in 1992. AtKisson Group members include consulting and training companies, university centers for sustainability, non-profit foundations, and independent practitioners in over a dozen countries. See www.AtKisson.com for more information.

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In an historic shift from words to action,
governments around the world
are grappling ever more seriously
with the challenge of developing a Green Economy.

But the challenge is huge.

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PREFACE AND SUMMARY

Boosted, busted, or blasting off? One year after it was meant to be the centerpiece of global sustainable development, at the “Rio+20” global conference, what is the status of the global transition to Green Economy? What is the “state of play,” strategically? And on the big, substantive questions — e.g. redirecting capital investment into green technologies, systematic decoupling of economic growth from resource consumption, putting nature onto the balance sheet — what’s happening, and who is doing what?

In early 2013, WWF Sweden asked us to do a global scan of these questions for WWF. We delivered this briefing to them in April 2013. Now (I am writing in August 2013), WWF Sweden has given us permission to share our findings with the rest of the world. (We express our thanks to Magnus Emfel, who coordinates climate innovation and sustainable economics for WWF Sweden, and we note again that the views expressed in this report are ours, and do not represent those of WWF Sweden or WWF International.)

In short, the Green Economy concept — which was intensely criticized at the Rio+20 conference, by critics from the political left, right, and even center — still appears more boosted than busted by the attention it received in Rio de Janeiro. As you will read in this strategic briefing, there is a tremendous amount of activity around the world that is linked to this concept, often at the very highest levels of government and corporate leadership. And in at least once case (China), the phrase “blasting off” is appropriate, because of the enormous levels of investment involved.

At the same time, some aspects of the envisioned global transition are moving very slowly or are even stalled, while the world debates its positions and searches in its collective wallet for the money needed to make the Green Economy a reality. Here are a few highlights, which were recently reconfirmed by a scan of global news stories on Green Economy (see the AtKisson Group’s newsletter WaveFront, August 2013 edition, for details):

- Countries around the world have established Green Economy programs, at scales ranging from tiny to gargantuan. China is aiming at creating a Green Economy sector worth hundreds of *billions* of dollars.
- Nonetheless, debates remain fierce on whether a Green Economy is desirable or even feasible, with conservative critics calling it a waste of money, and left-progressive voices calling it too much business-as-usual.
- Investment money, with the notable exception of China and a few other bright spots, is still closer to the “trickle” scale than the massive river of funds that is needed — and which has been promised (but not yet delivered) by national governments.
- Some nations are claiming to have achieved “absolute decoupling” in certain economic sectors, while critics argue that decoupling is a myth or an impossible dream without a reversal in overall growth trends. The concept remains controversial.
- Nature and ecosystem services are increasingly showing up on the world’s balance sheets and economic calculations — so much so that some of the academic originators of this idea now worry that the trend of “monetizing nature” has already gone too far.

You will find many more details, and links to original sources of information, in the pages that follow. *Green Economy 2013* is not meant to be a comprehensive; it is, of course, impossible to capture the details and complexities of a global transition as great as this in a 40-page scan.

But from our perspective, the indicators are convincing: there *is* a Green Economy, and despite many people’s worries and objections about it, it is growing. And fast. And hopefully, just in time.

— Alan AtKisson, Pres., AtKisson Group
Stockholm, Sweden, 18 August 2013

INTRODUCTION

The concept of a “Green Economy” – the definition follows in the next section – was not born in the run-up to “Rio+20” (the UN conference in 2012 that commemorated the Earth Summit of 20 years earlier, and which had been expected to launch a large global effort under the Green Economy banner).

Nor did the phrase die at Rio+20, as some skeptical and harshly critical voices probably hoped would happen. “Green Economy” was roundly criticized and attacked by a variety of both national government and civil society voices present in Rio. As a result, the phrase did appear to lose some immediate steam at Rio+20. In terms of its use within the UN system, it became weighted down by being forcibly grafted to other concepts during the negotiating process. Officially the phrase became, “green economy in the context of sustainable development and poverty eradication.”

But despite this bump in the road, in many countries, the process of greening the economy – or at least, the process of planning seriously how to do it, with policy instruments, investments, and large-scale initiatives – continues to accelerate. Many countries in both the developed and developing world have made commitments to a Green Economy that are both political (linked to policy) and economic (linked to investment). One country in particular, China, may be rocketing ahead of the rest of the world, with a trillion-dollar-plus investment plan over its current 5-year plan, supported by policies (e.g. in the banking sector) that drive change and innovation.

In fact, it is no exaggeration to say that a Green Economy is already a significant presence on planet Earth. It may comprise as much as 5% of the global economy already, and it is growing rapidly relative to the rest of the economy. This conclusion can be seen in the data: investment flows (into areas such as renewable energy), employment numbers (so-called “Green Jobs”), and the value of green-badged products and services in a wide range of countries (and offered on the global market).

In this briefing, we do not attempt to document the Green Economy in numeric terms. Instead, we summarize the strategic “state of play” (current issues, leading edge examples, etc.) in the global movement toward a Green Economy, to the best of our knowledge, using a combination of sources:

- The AtKisson Group’s existing knowledge base, drawing especially on our previous report *Life Beyond Growth*, produced in 2012 (see <http://www.lifebeyondgrowth.org>)
- New desk research, including a review of over 100 recent reports, initiatives, articles, research papers, and organizational websites (many of which are themselves summary reviews of different aspects of the Green Economy)
- Direct knowledge gained from participating in a wide variety of processes associated with the United Nations, European Union, US business and NGO, and international development projects

The briefing concludes with a set of action recommendations for Green Economy advocates.

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Because this is a strategic briefing, rather than a comprehensive report, we have simplified the characterizations and descriptions of certain aspects of the global Green Economy discussion. The terrain is vast and complicated, so we have selected limited numbers of examples that appear typical. Our purpose is to describe current practice and strategic issues (the “state of play”) in general, and sometimes provocative, terms in order to facilitate strategic reflection and discussion. Readers interested in the details, nuances, and finer distinctions are referred to the source documents cited throughout the document, all of which are available on the Internet.

Comments should be directed to: [information \[\[at\]\] atkisson.com](mailto:information@atkisson.com)

Key terms

These general terms are used throughout the briefing. Other specific terms are defined in their respective sections.

Green Economy

UNEP, the chief standard bearer of the Green Economy concept in the international system, defines it this way: “[An economy] that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive.” The phrase is capitalized in this brief except when quoting sources that do not capitalize it.

Green Economies

This is a variation on the phrase Green Economy that is used by, among others, WWF (See “Building Green Economies,” WWF UK). The phrase emphasizes that the world consists of many different economies, not just one. For simplicity, the term “Green Economies” is avoided in this briefing.

Green Growth

“Green Growth means promoting economic growth while reducing pollution and greenhouse gas emissions, minimising waste and inefficient use of natural resources, and maintaining biodiversity. Green growth means improving health prospects for populations and strengthening energy security through less dependence on imported fossil fuels. It also means making investment in the environment a driver for economic growth.” (OECD)

While the terms emphasis on “promoting economic growth” is what originally distinguished Green Growth (“GG”) from Green Economy (“GE”), the terms have grown closer in the past year. A recent United Nations guidebook cited elsewhere in this briefing explicitly uses the two terms interchangeably. This briefing, however, maintains the distinction, and capitalizes Green Growth as well.

Green Jobs

“Jobs are green when they help reduce negative environmental impact ultimately leading to environmentally, economically and socially sustainable enterprises and economies. More precisely green jobs are decent jobs that: reduce consumption of energy and raw materials; limit greenhouse gas emissions; minimize waste and pollution; protect and restore ecosystems.” (ILO)

Sustainable Development

An overarching concept, classically defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (Brundtland, 1987) Green Economy is currently seen as one necessary aspect of achieving sustainable development.

1. Models and frameworks of a Green Economy

In the context of Green Economy, “models” can mean both qualitative descriptions of how systems are set up to work (or should be set up to work), and more quantitative (or at least logical/mathematical) descriptions of specific cause-and-effect relationships within a system.

“Models” of a Green Economy can therefore include general descriptions designed to inform change processes (“this is a description of how a Green Economy could work”), as well as formal investigations using mathematical equations and computer-mediated scenarios (“our Green Economy model calculates the number of jobs that would be created by certain types of investments”).

The companion word “framework” usually refers to a set of core definitions and principles that shape, in turn, the discourse and the modeling around Green Economy (or any other term of art).

When it comes to the concept of a Green Economy, both models and frameworks can differ from user to user. For example, some might adopt the framework of the “Planetary Boundaries” as a starting point for modeling a Green Economy (economies that stay within measurable, scientifically determined, ecosystem thresholds, as described by Rockström et al. in *Nature*, September 2009), while others might frame the discussion in terms of traditional economic growth (producing jobs, income, and improved material wellbeing). Still others might start with less quantitative starting conditions that also emphasize social aspects more strongly.

In this briefing, we do not attempt to clarify every distinction made by all users of these terms, models, and frameworks, but we do flag important differences where it seems important to do so.

The State of Play

The phrase Green Economy entered the global policy dialogue most strongly when it began to be jointly promoted by a collection of organizations and voices that can be called “environmentalist” (WWF and UNEP, both members of the Green Economy Coalition, are prominent among them). The concept has always been inclusive of social issues, especially employment, but it placed stronger emphasis on the environmental protection aspect as compared to Green Growth or Sustainable Development.

The first UNEP “Green Economy Report,” published in 2011, set the framework and the model for international discussion, and included the results of a computer-mediated mathematical model that demonstrated a theoretical, large-scale capacity to create Green Jobs with green investments.

Leading up to the Rio+20 summit, however, there was considerable international confusion about the meaning of a Green Economy, and much emphasis placed on the differences between Green Economy, Green Growth, and Sustainable Development. Indeed, these terms were essentially in political competition. Different constituencies fought to highlight (or critique) one or another of the terms, and their definitions were often obscured behind the political debate. (Note: We described

these differences, and the relationships among these terms and their constituencies, in our 2012 report *Life Beyond Growth*.)

Since Rio+20, a new framework (or context) for discussing the Green Economy has emerged that sharply minimizes the differences among these terms. This new context has two key parts:

First is the formal redefinition of Green Economy, which was negotiated by the world leaders present at Rio+20 so that it always includes a much stronger social dimension, as well as a whole systems orientation. The phrase used in the formal documentation is now: “green economy in the context of sustainable development and poverty eradication.” At least in international circles, whenever officials speak about a Green Economy, the entire phrase is now along for the ride, whether spoken or not.

Second was an adroit formulation, promoted most prominently by the South Korean government (which had invested heavily in activities that relate to both Green Economy and Green Growth). South Korean officials now routinely explain that Green Growth is *one tool* for achieving a Green Economy, and a Green Economy is *one important element* of Sustainable Development. This “nested” framing reduces the perceived competition among these terms. *Source: dialogues with South Korean officials*

While the concept of a Green Economy is now generally accepted (as amended), it is still early in the process of implementation in most countries – *under the heading of Green Economy*. On paper, few countries have a formal Green Economy plan (though many have policy processes that are labeled that way). In practice, however, many countries have been pursuing green economic plans, policies, investments, etc. for many years.

It is important to note that the dialogue on models and frameworks goes hand in hand with indicators and measurements. This section of the briefing should be read in tandem with the later section on “Alternative indicators of progress.”

Overall status of national planning for a Green Economy

National planning for a Green Economy, using overarching models and frameworks, can be seen as an outgrowth of the National Sustainable Development Strategies that were developed (on and off) over the past two decades. What is different with Green Economy planning is the strong emphasis on fiscal instruments, subsidy reform, and other economic measures designed to produce positive environments, economic, and social results.

According to the UN Secretariat’s “Guidebook to the Green Economy” (2012), “Over the past five years, several emerging economies with substantial GHG emissions (notably Brazil, China, India, Indonesia, South Africa and South Korea) have developed integrated strategies on climate change and development or low-carbon growth. [...] Low carbon development objectives have ... been incorporated into recent national development planning documents released by a number of countries, including China (China’s 12th Five Year Plan, 2011), Japan (Japan’s New Growth Strategy, 2011), and Europe (Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth).

“[G]reen economy strategies could be seen as a further step in the evolution of integrated sustainable development strategies, promising new tools and a fresh approach for overcoming the gaps and challenges experienced over the past 20 years in the implementation of NSDS [particularly in integrating economic and fiscal policy instruments].”

In other words, Green Economy is not new. It is simply a new way to talk about the economic dimension of sustainable development.

Key Models and Frameworks in Active Use

The distinction between Green Economy and Green Growth, though minimized after Rio+20, remains significant. Institutions such as the World Bank have embraced phrases such as “inclusive Green Growth” (see its “Inclusive Green Growth Report,” May 2012), while UNEP, WWF, and other environmentally-oriented actors continue to champion Green Economy (or Green Economies).

As noted in *Life Beyond Growth*, while Green Economy may be the more comprehensive concept, Green Growth is the term (and framework) that has attracted the most mainstream adoption. The World Bank’s Green Growth efforts, for example, make a close connection to traditional growth language and measurement (such as the GDP) even though other elements of the World Bank are relatively critical to such GDP-linked frameworks (see WAVES later in this briefing). The World Bank’s official analytical framework for Green Growth shows how environmental policies can increase conventionally measured GDP through four channels linked to input, efficiency, stimulus and innovation effects. The relevant report stresses that “the ultimate test of green growth is welfare, not output.”

Larger Scale Policy Process

The phrase “Larger Scale Policy Processes,” used throughout this brief, refers to programs or initiatives that intend to redirect policy on a large-nation or international scale. The brief occasionally uses direct quotes from other reports or websites for efficiency; these are indicated with quotes. The reader is referred to these original sources for more information.

UNEP Green Economy Advisory Services: UNEP provides “policy advice, technical assistance and capacity building to governments in support of national and regional initiatives. ... UNEP is working with Nepal, Jordan, Indonesia, South Africa, China, Mexico, Brazil, Barbados [and a dozen other countries] as part of this service, which guides the development of new policies and supports their implementation with training, research, and other technical assistance.

See: <http://www.unep.org/greeneconomy/GEIHighlights/tabid/29873/Default.aspx>

UNEP’s Partnership for Action on Green Economy (PAGE): “... conceived as a response to the call for voluntary support to countries on green economy. PAGE [a partnership of UNEP, ILO, UNIDO and UNITAR] is structured into four components: (i) applied research and policy making, (ii) policy dialogues for high-level government officials, (iii) capacity development and applied practical training as well as (iv) country-driven advisory services. PAGE was officially launched at UNEP Governing Council in February 2013. [...] The aim is to assist 30 countries over the next seven years in building national green economy strategies” that shift investment policies toward “clean technologies, resource efficient infrastructure, well-functioning ecosystems, green skilled labour and good governance. During the first two years of the partnership, PAGE will focus on

seven pilot countries, yet to be named, and scale up this support to a total of 30 countries by 2020.”

Source of quote: Emily Benson et al., “Surveying the Green Economy and Green Growth Landscapes,” Green Economy Coalition, consultation draft dated October 2012. This document is highly recommended and is cited often in this briefing.

Global Green Growth Institute (GGGI): “... founded in 2010 in South Korea and supported by Australia, UAE, Japan, UK, Denmark, and Norway ... became an intergovernmental organisation in June 2012 [with satellite offices] ... dedicated to ‘pioneering and diffusing a new economic model of economic growth’ and designed to be an ‘open, global laboratory to support experimentation and collective learning by countries seeking to leapfrog the resource-intensive and environmentally unsustainable model of industrial development pioneered by advanced economies in an earlier era’. The GGGI analytical framework for ‘green growth’ is founded on McKinsey’s approach, featured prominently within the World Economic Forum circles, which hinges on the fluctuating prices of commodities as a result of environmental degradation and the productivity opportunities that could arise from greater resource efficiency in energy, agriculture/land, water and materials. [...] The framework assumes that social dimensions such as welfare and poverty alleviation will be delivered through trickle-down economics. The GGGI is now working with developing countries on ‘green growth planning’ including Ethiopia, Cambodia, Brazil, Guyana, Kazakhstan, Mongolia, Papua New Guinea and Philippines.” GGGI also runs a knowledge platform and produces policy reports.

Sources: Benson et al., and <http://gggi.org>

South Korea: The recent election brought a sharp change in emphasis within the South Korean government, away from Green Growth and back toward Sustainable Development. S. Korea had championed the Green Growth agenda internationally. The new government has sharply scaled down Green Growth activity and most observers expect the new government, which has made social issues and national “happiness” a central issue, to re-emphasize sustainable development. South Korea led the world on Green Growth starting in 2008 (when S. Korea dedicated 80% of its fiscal stimulus plan to green growth projects) and 2009 (when it committed 2% of its GDP through 2013 to implementing green growth). The impact of this shift in concrete policy and investment terms remains to be seen.

Source: The Korea Herald and other sources, including personal visit to S. Korea, Mar 2013; see <http://nwww.koreaherald.com/view.php?ud=20130328000986>

OECD: “... has developed a Green Growth Strategy and is now ‘mainstreaming green growth in its national and multilateral policy surveillance exercises to provide policy advice that is targeted to the needs of individual countries’. For the OECD, the sources of growth will emerge from [resource management and improved] productivity, innovation, new markets, confidence and stability, and green growth can also reduce risks to growth from bottlenecks and imbalances. ... Working with IIED, the OECD has also published one of the first reports examining policy frameworks for developing countries.”

Source: Benson, et al.

OECD has also documented many of the policy constraints, instruments, incentives that can be used in a Green Growth / Green Economy context, and will release a report in mid-2013 on Green Economy policy design and implementation specifically for developing countries (the report was developed in consultation with such countries).

G20: "...pursuing the development of a non-prescriptive good practice guide and toolkit for enabling national policy frameworks for inclusive green growth ... focuses on a combination of policy instruments for incentivising investment and internalising externalities, as well as a number of tools for policy evaluation, integrated decision-making, monitoring of progress and attracting finance." [...] The G20 "welcomed [a] report produced by the OECD, the World Bank and the UN containing options for incorporating green growth and sustainable development policies into structural reform agendas. G20 members will voluntarily report progress made in this area in 2013."

Source: Benson, et al.

European Union: "[The] EU 2020 strategy for 'smart, green and inclusive growth', which replaced the Lisbon strategy in 2010, aims at economic renewal to create jobs, encourage 'green economic growth and create an inclusive society'. The strategy includes 'employment rates, reducing poverty, reducing greenhouse gas emissions, increasing renewable energy consumption and increasing GDP in research and development'."

Source: Benson, et al.

Nordic Countries: "A 'Nordic Prime-ministers' Task Force on green growth' [was] launched in 2010, and made up of finance, industry, trade, employment and energy ministers from Denmark, Norway, Finland, Sweden, Greenland and Iceland ... identifies green growth as 'high priority for the coming years' for the region" and identifies eight relevant strategic priorities.

Source: Benson, et al.

APEC: At its summit meeting in April 2013, APEC [The Asia-Pacific Economic Cooperation Forum] "reaffirm[ed its] Leaders' commitment in 2012 to promote green growth and to seek practical, trade-enhancing solutions to address global environmental challenges, and their commitment in 2011 to reduce tariffs on environmental goods to 5 percent or less by the end of 2015."

Source: Office of the President of the Philippines

China: Already dominates the renewable energy market globally and "... earmarked an estimated \$140 billion of its \$586 billion US dollar fiscal stimulus package for green investments."

Source: Benson et al. But see later sections for more on China's current dominance in the area of Green Economy investment.

Smaller Scale Policy Initiatives of Note

The Green Economy Coalition has partnered with the New Economics Foundation, Stakeholder Forum, Development Alternatives and the African Centre for a Green Economy to support two new hubs for new economy thinking in South Africa and India. While not strictly speaking a policy initiative (all actors are NGO or UN-related) the institutions involved have strong connections to government and are likely to have a meaningful impact on national policy processes.

Examples and Case Studies

Business 20 Green Growth Action Alliance: a partnership assembled in tandem with the G20 meeting in Mexico, 2012. The initiative addressed the estimated \$1 trillion annual shortfall

in green infrastructure investment in Mexico, made recommendations, and documented a number of concrete actions and commitments taken by members, which included numerous large companies, consultancies, and institutions such as World Economic Forum. However, it is difficult to determine whether this initiative is policy relevant (it appears not to be).

Source: *Business 20 website*

Denmark: By treaty with South Korea, Denmark hosts an office of the Global Green Growth Institute. It remains committed to Green Growth policies and has “committed [significant] domestic funds to green growth, e.g. in their agricultural sector (DKK 645 million). ... The Danes’ commitment to [Green Growth] has also extended to their development assistance policy, whereby green growth is one of DANIDA’s four strategic priorities.”

Source: *Benson, et al.*

South Africa: “... developing scenarios for long term planning and decision making in green economy focus areas. The Treasury are looking at economic policy instruments, particularly the carbon tax.” So far, investment levels are small: “They have also announced 1.1 million over three years for green projects.”

Source: *Benson, et al.*

Tanzania: “... specific initiatives such as the Southern Agricultural Growth Corridor of Tanzania (SAGCOT), which has leveraged public-private sector and multi-donor catalytic investment of over \$2bn.” [...] “By addressing the entire agricultural value chain, the SAGCOT approach will go beyond raising agricultural productivity and ensure the necessary infrastructure, policy environment and access to knowledge to create an efficient, well-functioning agricultural value chain’.”

Source: *Benson, et al.*

Cambodia: [In March 2013] the Cambodian government officially launched a National Council on Green Growth (NCGG) ... responsible for working with different ministries to ensure that green growth policies are implemented nationwide across various sectors by the entire government, not just the environment ministry.”

Source: *Korea Times, can be viewed here:*

http://www.koreatimes.co.kr/www/news/biz/2013/03/123_132378.html

Indonesia: Indonesia is applying Green Growth principles to green the government's “Masterplan” (development plan), called MP3EI in Indonesian, which is “heavy on economic growth, focused more on attracting investors to invest in Indonesia's natural resources (mining, plantation, forestry/timber, ecotourism, agriculture, infrastructure). Kalimantan is one of the corridors to invest in, as it has huge forest (which according to the WWF Report, Heart of Borneo, is under serious threat). As WWF has been investing so much on this island, GGGI [Global Green Growth Institute] will focus on this area as project site.”

Source: *Personal communication from Darwina Widjajanti, PwC, Jakarta*

2. Systematic decoupling as a theme in Green Economy initiatives

“Decoupling” refers to a delinking of traditional economic growth and progress from resource consumption and waste. An economy that is experiencing “decoupling” displays increasing GDP but ever decreasing associated rates of raw materials consumption; use of resources such as land, water, and nonrenewable energy sources; and pollution flows. “Systematic” means that policy and implementation is designed to produce this result on a continuous basis, across all sectors of the economy.

The concept of decoupling was first brought into significant policy dialogues, in a Green Economy context, by the Dutch government during the 1990s (a period that was that country’s high point as a global leader in terms of green planning and sustainable development). Dutch efforts to improve efficiency and reduce pollution resulted in some measurable decoupling (such was the claim of the Dutch government at least), and attracted much attention. While the Netherlands largely relinquished its leading role on Green Economy issues during the 2000s, numerous other countries have shown results similar to the Dutch in recent times, especially with regard to carbon intensity of their economies. Whether these results are best classified as incidences of true “decoupling” or merely examples of improved resource efficiency is often a matter of intense debate. Indeed, the very possibility of decoupling remains controversial, with highly visible critics such as economist Tim Jackson (author of *Prosperity without Growth*) declaring it to be impossible without an abandonment of traditional economic growth paradigms.

Possible or not, achieving *absolute* decoupling – that is, economic growth (measured in GDP) that results in *absolute* and real decreases in overall resource use, rather than just *relative* efficiency gains – has proven challenging. Evidence for its existence, for and against, is often disputed (see below).

And yet, despite the many doubts and debates that swirl around the topic, achieving absolute decoupling remains the “holy grail” (the primary objective) of many Green Economy / Green Growth programs, both national and private sector. Even when the concept is not referred to directly, it is present implicitly: all Green Growth programs, for example, can be fairly described as *decoupling* programs. UNEP, when writing that “A green economy is first and foremost about transforming the way economies grow,” is essentially betting on decoupling.

Source: *Briefing Paper on Indicators for a Green Economy, 2012*

In concrete policy terms, “systematic decoupling” is driven by policies that require or incentivize dramatic efficiency gains or changes in technology or business model that achieve similar results. For example, policies to systematically improve energy efficiency, or drive a switch from coal and oil to natural gas and onward to fully renewable sources, can be seen as decoupling policies, because the aim is a steady reduction in carbon dioxide emission per unit of production and/or revenue. Policies to replace products with services, or to dematerialize economic functions and services, also have decoupling as an explicit or implicit goal.

Current State of Play

Given the above background, the “state of the art” in systematic decoupling can itself be coupled to the state of the art in overall Green Economy and Green Growth policy frameworks and models, profiled in the previous section.

More specifically, only a few countries have achieved decoupling in recent times, and most in just one economic or resource dimension. France, Germany and Italy have in recent years experienced rising GDP and falling absolute carbon emissions. Other developed countries have pursued energy and other policies resulting in relative decoupling: that is, reduced carbon per unit of GDP, but without an absolute reduction in emissions (which continue to grow). The Netherlands, in its Green Growth indicators for 2011, also reported progress in terms of decoupling, and claimed that it had achieved “Absolute Decoupling” in two areas: nutrient surpluses and water use intensity. (See illustration below, Figure 1.)

| Group | Indicator | Time series | Trend | Policy targets |
|--------------------------|--|-------------|---------------------|--------------------|
| Environmental efficiency | Production-based greenhouse gas intensity | 1990–2009 | Relative decoupling | Likely to be met |
| | Consumption-based greenhouse gas emissions | 1996–2009 | Relative decoupling | - |
| | Energy efficiency | 1990–2009 | Relative decoupling | - |
| | Renewable energy | 1990–2009 | Improvement | Unlikely to be met |
| | Nutrient surpluses | 1990–2009 | Absolute decoupling | Likely to be met |
| | Material intensity | 1996–2008 | Relative decoupling | - |
| | Water use intensity | 1990–2009 | Absolute decoupling | - |
| | Water treatment | 1985–2008 | Improvement | Likely to be met |
| Natural asset base | Stocks of standing timber | 1990–2005 | Improvement | Unlikely to be met |
| | Fish inputs | 1996–2008 | Deterioration | - |
| | Natural gas reserves | 1996–2010 | Deterioration | - |
| | Land conversion into built-up land | 1900–2006 | - | - |
| | Threat to biodiversity | 1994–2005 | Deterioration | Unlikely to be met |
| Quality of life | Pollution induced health problems | 1980–2000 | Improvement | - |
| Policy responses | Green patents | 2000–2006 | Increase | - |
| | Share of green taxes | 1990–2009 | Increase | - |
| | Energy prices | 1990–2009 | - | - |
| | Carbon trade | 2005–2009 | - | - |
| | Environmental investments | 1990–2007 | Stable | - |
| | Green jobs | 1995–2008 | Increase | - |

Figure 1. Chart from United Nations Statistical Division, brochure on the System of Environmental-Economic Accounts (SEEA), copying a Dutch assessment Green Growth indicator chart, showing “Absolute decoupling” as one of the ultimate goals of Green Growth.

A recent (March 2013) conference and debate hosted by Chatham House in the UK featured the Green Growth (note the use of this term, rather than Green Economy) case studies of Sweden, Denmark, Mexico, Ethiopia, and Indonesia (countries also profiled in this briefing). Papers from this conference were not released to the public, but the UK’s Royal Society published a blog entry summarizing it.

See “Inside the Green Growth Debate,” 15 March 2013, Sally Tyldesley, Policy Adviser, Royal Society, <http://blogs.royalsociety.org/in-verba/2013/03/15/inside-the-green-growth-debate/>

The Chatham House conference appears to reflect the current state of play on the topic of decoupling, which has remained basically unchanged for the past several years: policy experts inside government line up in support of decoupling, critics outside government express skepticism and doubt. The same policy ideas to achieve decoupling have been suggested, or actively pursued, by governments since at least the 1990s, including:

- classical regulation
- stimulating corporate innovation through market pricing signals (e.g. carbon taxes)
- raising consumer awareness
- public procurement policy
- technology specific mechanisms such as feed-in tariffs
- rethinking GDP as our measure of growth (see later section)

One can find examples of each of these mechanisms in nearly all Green Economy / Green Growth policy initiatives, though not always as an integrated strategic approach.

A more interesting place to look for evaluating the “cutting edge” of decoupling is in the corporate sector, where leading sustainability-oriented companies have set specific decoupling-based visions and goals, driven by a combination of their own risk assessments, market forces, and activist pressure (see later section).

Note that the United Nations-sponsored “Green Climate Fund,” which should eventually come online with billions of dollars in investment capital, can be seen as a “giant decoupling strategy” with regard to carbon emissions (see below). But in general, there is no specific large-scale investment program that has the promotion of decoupling as its primary objective; rather, the *presence* of decoupling is seen as a primary *indicator* of Green Growth success.

Larger Scale Policy Process

Green Climate Fund: If implemented as agreed, the GCF will mobilize USD100 billion by the year 2020 in a combination of adaptation and low-carbon development actions in the developing world. The GCF can be seen as the world’s largest strategy for promoting decoupling of economic growth from greenhouse gas emissions. However, as of the most recent rounds of talks, it is still unclear how or when these funds will move.

See: <http://www.rtcc.org/what-next-for-the-green-climate-fund-after-doha-dud/>

Smaller Scale Policy Initiatives of Note

United Nations Industrial Development Organisation (UNIDO): “... is developing an extensive programme on Green Industry, a two-pronged strategy to decouple resource use and pollution from industrial development and promote sustainable productive sectors and entrepreneurship in developing and transitioning countries.”

Examples and Case Studies

Most national level Green Economy strategies and policies are still lacking in such basic approaches as an explicit attempt to internalize externalities: “... from the ten [national strategies for green economy] reviewed only the three strategies for developed countries adopted ... policy measures [for internalizing externalities]. ... [M]ost developing countries are using economic instruments to incentivize small-scale investment, particularly in the form of micro-finance, micro-insurance, small grants and government-backed loans.”

Source: Benson, et al.

3. Alternative indicators of progress

New indicators of overall national progress that can complement or supplant the GDP as the primary measuring stick have been actively in development for two decades. As detailed in our 2012 report *Life Beyond Growth*, these measures picked up significant steam in the late 2000's as leading international economists began to endorse them, and as large nations began seriously to develop and adopt them.

An “alternative indicator of progress” is a large-scale (e.g. country-scale) measurement that intends to reflect the overall wellbeing and progress of a society (or some aspect of wellbeing and progress) that is not covered by the GDP. Such “alternative indicators of progress” are comprised either of an aggregated index (such as the Human Development Index or Ecological Footprint) or a set of indicators (such as national sustainable development indicator sets.) Some are essentially single-issue measurements (such as subjectively based national happiness measurements).

Most alternative indicators are linked to frameworks and models, either explicitly or implicitly. For example, the new Inclusive Wealth Index (see below) is explicitly linked to a highly developed mathematical description of the economy that incorporates the value of ecosystems, human knowledge, and other factors excluded from traditional measurements. The more widely known “Happy Planet Index” (also described below) reflects an implicit, much less detailed model that includes a science-based normative judgment regarding consumption levels.

For a relatively comprehensive guide to current alternative indicators of progress, please see *Life Beyond Growth*. In this briefing, we focus on the current “state of play” and on key examples that are relevant for strategic reflection.

The State of Play

In Fall 2012, the OECD held the fourth in a series of World Forum events on “Measuring Wellbeing for Development and Policy-Making”. National statisticians, senior government officials, and prominent economists were in attendance (including the Nobel Prize winner Joseph Stiglitz). The entirety of the event and its attendance confirmed that new, so-called “alternative indicators” are now a serious part of many countries’ economic planning and assessment strategies.

In other words, “alternative” is fast becoming mainstream.

However, while many alternative indicators now in use (somewhere in the world) have Green Economy aspects, few of these measures can be explicitly linked to the Green Economy. (WWF has been among the leaders in promoting alternative indicators with green messages, especially with regard to the Ecological Footprint and the Living Planet Index.)

Measuring progress on the development of a Green Economy remains one of the weaknesses of this movement. The problems are partly conceptual (relating to how one defines a Green Economy), and partly technical (related to traditional indicator definition, data availability, and aggregation challenges).

OECD has led the technical charge globally, but its focus is on Green Growth, not Green Economy, starting with an influential framing document in 2011 ("Towards Green Growth: Monitoring Progress - OECD Indicators). OECD makes an extensive database of indicators and data available online, covering over 40 countries.

See: http://stats.oecd.org/Index.aspx?DataSetCode=GREEN_GROWTH

OECD's indicators embody a conceptual framework for Green Growth comprised of four overarching categories: (1) Environmental and resource productivity, (2) natural asset base, (3) environmental quality of life, and (4) economic opportunities and policy responses.

OECD's work is the most policy relevant at this point, because its framework has been actively adopted by several national governments (e.g. Netherlands, South Korea, Czech Republic) who have, in turn, issued national indicator reports using the OECD methodology. The methodology is now spreading to developing countries, especially in Latin America. However, it is unclear to what extent these indicators play any significant role in national policy.

UNEP is, in contrast, working on indicators that are explicitly linked to the Green Economy, but neither the framework nor the indicators are settled yet. A 2012 briefing paper pointed toward indicators in three categories: (1) economic transformation processes (e.g. investments); (2) resource efficiency (land, water, energy, raw materials, etc.); and (3) progress and wellbeing (drawing on other measures, such as the Genuine Progress Indicator, see below). A newer, longer UNEP report (Dec 2012) explores indicator options and replaced the above with a different set of framing concepts: environmental target setting, policy intervention, and impacts on wellbeing. A handbook on developing and using Green Economy indicators is being prepared by UNEP now, and is scheduled for release in June 2013.

Source: *Andrea Bassi, consultant to UNEP, personal communication*

In sum: alternative indicators of progress in the context of Green Economy are still very much in evolution; and indicators of Green Growth are well ahead in the race to policy relevance.

Larger Scale Policy Process

The OECD Green Growth indicator program is the most prominent policy process and is generally described above. See: <http://www.oecd.org/greengrowth/greengrowthindicators.htm>

Work using the OECD framework is underway in Mexico, Colombia, Costa Rica, Ecuador, Guatemala, Peru and Paraguay. The intent is to apply the OECD indicators as a way to identify key areas of national concern and the scope for improving the design, choice and performance of policy instruments. The work is supported by the OECD, the Latin America Development Bank, the Latin American and the Caribbean Economic System and the United Nations Industrial Development Organization (UNIDO).

SEEA: In February 2012, the UN Statistical Commission approved the System of Environmental-Economic Accounting (SEEA). SEEA contains the internationally agreed standard concepts, definitions, classifications, accounting rules and tables for producing internationally comparable statistics on the environment and its relationship with the economy. This marks a critical step

towards mainstreaming aspects of the Green Economy into the core work of national statistical offices.

China's Green GDP: Efforts to make adjustments to the GDP to “green” it, by subtracting the costs of environmental damage, have been pursued for two decades, in several countries, but have usually been stopped by a combination of political and methodological problems. China produced the only recent, official, national-level “Green GDP” study in 2006, but the work was swiftly withdrawn because of harsh critique and political opposition from provincial leaders. Recent pollution crises in China have forced a revival of the effort, and most recent numbers document 3-4% losses to China's GDP from environmental pollution and damage.

See:

http://www.chinadaily.com.cn/cndy/2013-02/27/content_16258973.htm

and

<http://www.cleanbiz.asia/news/chinas-revived-green-gdp-program-still-faces-challenges?page=show#.UXT8r4K687w>

The World Bank and other partners have a major partnership to promote the measurement of ecosystems and natural resources in national accounting. This initiative “WAVES,” is profiled in the section on “Valuing Ecosystem Services and Natural Resources.”

Smaller Scale Policy Initiatives of Note

Inclusive Wealth Index (“IWI”): Formally released in 2012, the IWI – which measures overall growth or decline in the value of an economy in a way that integrates changes in human and environmental capital – has been under development for six years. The IWI can be considered a policy initiative only because it was adopted by UNEP (it was originally produced by academics associated with UNU); and because the methodology has been used in smaller scale (sub-national) policy and assessment processes.

According to the IWI, 70% of countries assessed present a positive IWI per capita growth; but this is largely due to the tradeoffs between increasing human capital at the cost of declining natural capital in most countries. The IWI is often contrasted with the GDP and Human Development Index: about 25% of countries that show positive increases in GDP and HDI actually show declines using the IWI methodology.

Examples and Case Studies

The Green Economy Index: A small, private-sector consultancy called Dual Citizen produces this index annually, comparing the Green Economy perception and performance of 27 nations as well as some leading “green cities.” The methodology is transparent, the indicators are well-chosen, and they fall into four categories: political leadership, policy, clean-tech investment, and sustainable tourism. This is a promising initiative, now in its third year, and it may deserve more attention and greater effect to make the results more policy relevant.

See: <http://www.dualcitizeninc.com/ggei2012.pdf>

NASDAQ OMX Green Economy Global Benchmark Index (QGREEN): This is not a policy process, but rather a commercial, investor-oriented indicator system linked to an explicit framework comprised of six elements: (1) clean transportation, (2) more efficient and cleaner energy production, (3) better water usage and management, (4) greener buildings, (5) clean and efficient waste management, and (6) improved land usage through sustainable farming and forestry.

See: <https://indexes.nasdaqomx.com/Home/Green>

4. Valuing ecosystem services and natural resources

“Valuing ecosystem services and natural resources” means applying a monetary value to natural ecological functions, as well as materials, that provide benefits to the human economy. These services and resources range from minerals, to clean water (provided by natural landscapes etc.), to the regeneration of fish stocks (provided by biological systems), to the pollination services of bees (provided by ecological systems).

Key moments in the development of this intellectual movement include the publication of Robert Costanza et al.’s landmark study in 1997 that put a dollar figure on the value of global ecosystem services annually (approximately USD 33 trillion) (*Nature*, 15 May 1997, p. 253); the publication of the Millennium Ecosystem Assessment in 2000, which estimated a 60% decline in ecosystem services over the previous 50 years; and more recently the publication of “The Economics of Ecosystems and Biodiversity,” or “TEEB,” in 2010 (<http://teebweb.org>), which helped to solidify the “business case” for pricing ecosystem services in PES schemes (“payment for ecosystem services”). Such programs now exist in numerous countries and in numerous contexts, from carbon sequestration to biodiversity conservation. (For a good overview, see “Paying for Ecosystem Services—Promise and Peril,” Kinzig et al., *Science*, 4 Nov 2011.)

The international market in carbon offsets (the “Clean Development Mechanism”, CDM) as well as the trading of carbon emission rights (“Emission Trading Schemes”, ETS) can also be seen partly as valuation and trading processes for ecosystem services. However, reviewing this exceedingly complex area is beyond the scope of this brief. Note that ETS’s are in development and expected to be launched soon in China and South Korea, even though the EU’s ETS has famously collapsed.

Most recently, the adoption of SEEA (System of Environmental-Economic Accounting) in 2012 created a UN-standard set of statistical practices that can dramatically improve data and make possible international comparisons of valuation, both of costs and assets, in a national reporting context.

The State of Play

Moving ecosystems services and other natural resources (and environmental costs) onto the balance sheet of nations is a major element of many alternative indicator systems (see earlier section), and the concept can now be said to have crossed a threshold into mainstream practice. Methodologies have matured: a recent update (2012) to the original Costanza study of 1997 reviewed over 1,350 value estimations in hundreds of documents to produce a new set of detailed estimates, showing the value *per hectare, per year* of different sorts of ecosystems and their related services. (See de Groot et al., “Global estimates of the value of ecosystems and their services in monetary units,” *Ecosystem Services*, 31 July 2012)

Leadership in the policy space is largely with the World Bank and with specific national governments (see examples below). To quote from a recent World Bank press release (18 April 2013): “World Bank Vice President for Sustainable Development Rachel Kyte said natural capital accounting was no longer an academic concept, with proof being the number of countries now doing it.”

However, having created the concept of valuing ecosystems in monetary terms, many leading researchers in the field now seriously question the practice. Prominent ecological economist Richard Norgaard has led this critical charge: “What started as a humble metaphor [the metaphor of services flowing into a market] to help us think about our relation to nature has become integral to how we are addressing the future of humanity and the management of ecosystems. ... [Now] the dominance of the metaphor is distorting how we understand ecosystems, shifting us from complex and evolutionary systems thinking toward simple stock-flow analysis. It suggests we can manage, even optimize, our interaction with nature in very simple terms. This cannot be good.” (Norgaard, “Ecosystem services: from eye-opening metaphor to complexity blinder,” summarized on Ecosystem Commons, 12 March 2012, from a longer academic paper)

The most recent high-profile activity in this space involves not promoting the value of previously unvalued resources, but critiquing traditional ways of valuing natural resources such as petroleum and fossil fuels. A new report (17 Apr 2013) by the Grantham Institute (headed by Nick Stern) and Carbon Tracker Initiative has generated headlines in recent days by pointing to a “carbon bubble” in the world’s financial system. The financial value of assets of oil, gas, and coal (trillions of dollars) would have to be written off if the world decided not to burn them, in order to maintain the 2-degree warming limit agreed to by nations.

See “*Unburnable Carbon 2013: Wasted capital and stranded assets*,”
<http://www2.lse.ac.uk/GranthamInstitute/publications/Policy/docs/PB-unburnable-carbon-2013-wasted-capital-stranded-assets.pdf>

Larger Scale Policy Process

The World Bank leads a global partnership for **Wealth Accounting and the Valuation of Ecosystem Services (WAVES)**, which is supporting national environmental accounts and developing internationally-agreed guidelines for ecosystem accounting. WAVES is already working with Botswana, Colombia, Costa Rica, Madagascar and Philippines; and partners include UNEP, UNDP, and UN Statistical Commission. The initiative held its third high-level meeting, with 25 Ministers and Vice-Ministers, at World Bank headquarters in April 2013. WAVES promotes the use of SEEA and critiques continued overreliance on the GDP (see section on “Alternative Indicators”). It works actively with partner nations to develop four-year programs that result in the integration of natural capital accounting into Systems of National Accounts. (See <http://wavespartnership.org>) It also produces excellent documentation, such as “Moving Beyond GDP,” a highly readable explanation of why this shift is necessary.

See:
http://www.wavespartnership.org/waves/sites/waves/files/images/Moving_Beyond_GDP.pdf

The Global Environmental Facility (GEF): As of 2010, GEF had invested in 42 projects where Payment for Ecosystem Services was the core objective, including setting up two national scale programs, Costa Rica and Mexico. In Costa Rica, GEF partnered with the World Bank, the Government of Germany and others to compensate landowners for conservation activities such as reforestation and carbon sequestration. GEF’s program is arguably the leading example of PES currently in practice and amounts to approximately half a billion US dollars in total money flow.

See: http://www.thegef.org/gef/sites/thegef.org/files/publication/PES_english.pdf

Smaller Scale Policy Initiatives of Note

The Swedish government has recently engaged (January 2013) a formal reviewer, Maria Schulz of Stockholm Resilience Center, to propose how to integrate ecosystem services into economic and political decision-making. The review, due in September 2013, will build on a

published compilation document on ecosystem services, assembled by Naturvårdsverket (Sweden's Environmental Protection Agency) as a prelude for policy discussion.

See announcement (in Swedish): <http://www.regeringen.se/sb/d/16903/a/207216>

The compilation study document (in Swedish only) can be downloaded here:

<http://www.naturvardsverket.se/Miljoarbete-i-samhallet/Miljoarbete-i-Sverige/Regeringsuppdrag/Redovisade-2012/Ekosystem-och-ekosystemtjanster/>

The European Union through DG Environment has been reviewing international experience to build policy options in Europe for implementation of PES schemes. However, the review is still at the study stage; no concrete policy proposals are in play, and there is skepticism that existing mechanisms are mature enough to work at large scale: "Researchers argue that of the five mechanisms available for ensuring the provision of ecosystem services – prescription, penalties, persuasion, property rights and payments – only payments are likely to be effective at the global level. However, while a number of international Payments for Ecosystem Services (IPES) schemes exist, their impact on ecosystem services remains negligible."

See: "Science for Environmental Policy, Thematic Issue, Payments for Ecosystem Services," March 2012, DG Environment. Can be downloaded from:

<http://ec.europa.eu/environment/integration/research/newsalert/pdf/30si.pdf>

The UK Government has extensively researched ecosystem valuation schemes and the prototyping of valuation transfer methods, in preparation for future policy initiatives. Note that the Swedish review identified the UK process as the most advanced. See:

<https://www.gov.uk/ecosystems-services>

Examples and Case Studies

"Thirty-five companies, including AkzoNobel, PUMA, BP, Disney, Coca-Cola and Hitachi, now mention ecosystem services in publicly available materials ... corporate engagement with the issues is clearly on the rise, as documented in a new report from BSR ... this private sector work on ecosystem services covers a wide spectrum. Some companies have crafted corporate policies to have 'no net impact' or 'net positive impact' on ecosystems or ecosystem services. Other businesses are exploring the issues and pilot testing analytical tools. Some simply state that they recognize the importance of ecosystem services." Source: "How Puma, Disney and Hitachi use ecosystem services", S. Waage, GreenBiz.com, 22 Mar 2013

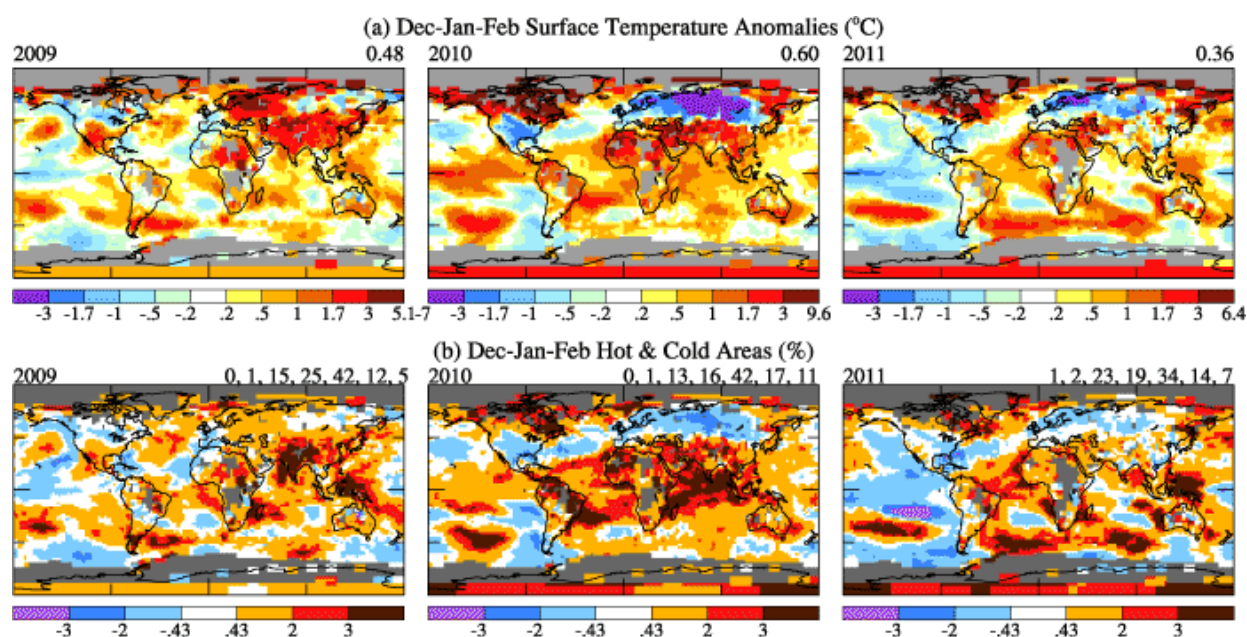
5. Risk and cost assessments of ecosystem damages and climate impacts

“Superstorm Sandy,” which struck the northeast United States just prior to the US presidential election in late 2012, was simply the most recent in a growing series of extreme weather events that are increasingly linked to climate change. The links are made not just by environmentalists and climate scientists, but by insurance companies, who increasingly “take the hit” when disaster strikes and ecosystems and human systems are seriously damaged. Insurance companies also have a strong interest in assessing both the risk and growing cost of such impacts. (The IMF has reported that the damage from natural disasters of all kinds has increased from \$20 billion per year in 1990 to over \$100 billion per year.)

Costs associated with climate change have been making headlines since 2006, when the “Stern Review on the Economics of Climate Change” changed the global dialogue. But climate change is not the only source of increasing damage. Industrial accidents, such as the BP Deepwater Horizon oil spill of 2010, are also on the rise and driving rapid evolution in both the policy and commercial arenas. In China, for example, there were 135 industrial accidents causing environmental damage reported in 2008; in 2011, the number was 542.

In the field of climate change, the compelling evidence keeps mounting. For example, a NASA study released in 2012 showed conclusively that the number of extreme weather events such as heat waves and droughts (technically, events that fall more than three standard deviations from the mean) had increased markedly in recent years. These costly incidents are strongly linked to global warming ... and drive the kinds of damage that insurance companies worry about.

See Figure 2, illustration from NASA below, source: <http://data.giss.nasa.gov/gistemp/2011/>



The State of Play

High profile events such as those mentioned above drive the global headlines on estimating the damages and risks of environmental degradation and disaster. They also drive, to some extent, the development of policy and methodology. They make it plain that certain large-scale costs and risks have been ignored (up to the moment of such tragedies). In their aftermath, policy processes kick in to prevent similar future events.

It is still rare, however, to find *preventative* policy initiatives responding to assessments of *potential* risks and costs from environmental damage and climate change impacts. The “state of play” is still largely in the realm of studies and analyses.

For example, the Economics of Ecosystems and Biodiversity “TEEB” study described earlier (2010) set a global benchmark for putting a valuation on the economic damages caused by industrial activity (the estimate ranged from two to six trillion dollars per year).

Recently, TEEB published a new report looking specifically at environmental costs (externalities) caused by business activities. In sum, TEEB estimated that business activities cost USD 4.7 trillion annually in environmental damage. The study also detailed every major business sector to highlight where the damage caused is greatest. The most damaging sector was coal-fired power generation in East Asia, which causes an economic burden of over \$450 billion every year while generating only \$443 billion in revenue. Cattle ranching in South America was far worse, causing over \$350 billion in natural capital losses against revenues of just \$17 billion.

See full report at teebweb.org or short review here: <http://www.bloomberg.com/news/2013-04-17/environmental-cost-of-business-estimated-at-4-7t-annually.html>

But large-scale events and global studies would not be such powerful catalysts for policy change if there were not a strong case to be made on the cumulative impacts of smaller scale damage. That case is getting stronger every year. The impacts are felt largely in the business sector rather than the policy sector.

For example, a study by insurance giant Munich Re, reported recently in *Nature Climate Change*, detailed how damage to US property from severe thunderstorms has doubled over the past 30 years. The insurer subtracted factors such as increased density in cities and other socioeconomic changes; what was left was climate change-driven, in the eyes of those who must pay the bills.

See: “Climate change brings stormier weather to the US,” Quirin Schiermeier, *Nature*, 11 April 2013

At the micro scale, single companies — most notably Puma — have also been experimenting with quantifying their environmental damages and including these calculations on their balance sheets. Industry-wide tools are in development for such estimations. But as of yet, such exercises are purely “academic” in that companies are generally not required by policy to do such reporting, or to provide any compensation, except in cases where “risk” has gone over to “accident” (such as in the case of BP).

The “flip side” of estimating losses and risks is to estimate gains from conservation and restoration. UNEP has pushed on this front globally. But the most interesting action in this space is at a small scale, as described below.

See “*Dead Planet, Living Planet,*” a report from 2010, available at http://www.unep.org/publications/contents/pub_details_search.asp?ID=4144

Larger Scale Policy Process

The most prominent activity in this space right now is led by the International Monetary Fund, which is pushing for an end to fossil fuel subsidies, and whose director, Christine Lagarde, has been making headlines with her warnings about the cost of inaction on climate change.

See: “*Energy Subsidy Reform: Lessons and Implications,*” 28 Jan 2013, which attracted news coverage around the globe. Original study downloadable here: <http://www.imf.org/external/np/pp/eng/2013/012813.pdf>

Note that all climate negotiation, mitigation, adaptation programs can be thought of as policy responses that are related to the risks and costs of ecosystem damage and climate change. This includes global negotiating programs such as the UNFCCC or CITES, and large-scale investment programs profiled elsewhere in this brief (such as, for the example, the Green Climate Fund). Reviewing such programs is beyond the scope of this brief.

Smaller Scale Policy Initiatives

The European Commission has documented both “The costs of not implementing the environmental acquis” (2011) and “The economic benefits of environmental policy” (2010). The cost to the European economy of *not* implementing its environmental regulations etc. is estimated at between 200 and 300 billion euros per year. (See: http://ec.europa.eu/environment/enveco/economics_policy/)

Case Studies

There are far too many potential small-scale policy initiatives and case studies to highlight under this topic. We have highlighted instead two illustrative case studies that focus on the benefits of restoration.

- In Namibia, a 20-year process of developing community conservation councils and investing in ecosystem and species restoration has generated millions of dollars in income to poor regions of the country, while also resulting in growing populations of wild animals. (WWF is an important actor in that ongoing process.) *Source: personal communication, Keith Sproule, WWF Namibia; and Wikipedia entry on conservation councils in Namibia*
- The wetland of Hail Haor, in north-east Bangladesh, provides fish and aquatic plants that are essential sources of food and income for local communities. Severe over-exploitation put the annual benefits of US\$ 8 million at risk. This motivated local and regional efforts to improve wetland management and install protection zones. Protecting just 100 ha of wetland, by restoring some critical habitats and establishing closed seasons for fishing, contributed to increased fish catches across the 13,000 ha of the entire Hail Hoar wetland by over 80% and local fish consumption by 45%. *Source: Bank of Natural Capital, a TEEB project*

6. Green jobs investment and creation

Millions of jobs now fall into the category of “Green Jobs” as defined by the ILO (jobs designed to reduce environmental harm): over 7 million in the EU, over 3 million in the US, and nearly 3 million in Brazil (equivalent to 6.6% of all formal employment in Brazil).

Even more Green Jobs exist already when jobs relating to natural resource management are included, such as forest regeneration, nature conservation, and protection of biodiversity: the estimate in the EU for jobs in this category is 14.6 million.

Definitions are hotly debated — even new legal marijuana farms in several U.S. states will technically generate “Green Jobs” — but the estimates cited here come from most-reliable governmental and international sources.

The State of Play

Despite the encouraging numbers cited above, “Green Jobs” are still more often placed in the category of “what could possibility happen” rather than “what is happening.” The global conversation about Green Jobs is dominated by estimates of *potential* job creation from a variety of investments, especially energy conservation and renewable energy. These estimates, in turn, drive both policy and political (i.e. electoral) processes.

Note that estimates of Green Job creation link back to the earlier topic of models and frameworks. Mathematical models have been frequently used to estimate the Green Job creation impact of various investment scenarios. One example: “Green jobs? Economic impacts of renewable energy in Germany,” Lehr et al., *Energy Policy*, Aug 2012, which predicts about 600,000 jobs in renewable energy in Germany by 2030.

Models are used for foresight. In hindsight, in the advanced economies, most “Green Job” creation is driven by government policy — specifically, environmental and energy regulations. This makes the issue polarizing. While studies suggest that the job-creation impacts of Green Jobs investment are significantly higher than investment in “brown jobs” (e.g., fossil-fuel industry jobs), there are concerns raised, usually by conservative voices, that regulatory-driven Green Jobs created equate to Brown Jobs lost.

An ILO study suggests that this worry is unfounded, and that globally, a shift to a Green Economy results in possible “net gains” of 0.5 to 2% of jobs. However, the transition will be difficult, since 10-20% of jobs depend on the existing “brown” economy (e.g. the fossil fuel industry). Transition policies must be handled correctly to avoid serious displacements.

Source: “Working towards sustainable development: Opportunities for decent work and social inclusion in a green economy,” 2012, published by the Green Jobs Initiative, whose members include the ILO, the International Institute for Labor Studies, UNEP and others. See this and other sources at: <http://www.ilo.org/global/topics/green-jobs/lang-en/index.htm>

Larger Scale Policy Process

The US government has had relatively large-scale programs to develop Green Jobs for several years (starting with the first Obama administration). These run from subsidy programs in the renewable energy sector to special training programs aimed at war veterans. The US also tracks the creation and impact of such jobs – or at least, it did until recently. The annual US “Green Goods & Services” report, produced by the Bureau of Labor Statistics and the most reliable way to track progress, is to be suspended by the “sequester” budget cuts. The most recent (and possibly last) report estimates that there are now “3.4 million jobs in the United States associated with the production of green goods and services.” Keith Hall, former director, Bureau of Labor Statistics, US Government, wrote recently that government regulation is what drives the creation of such jobs, and that the creation of Green Jobs comes at low efficiency and at the cost of jobs in other sectors. Environmentalists decry the budget cut.

See “Goodbye to Green Jobs, You Won’t Be Missed,” by Keith Hall, *Forbes Magazine*, 4 April 2013

South Korea’s Green Growth initiative was intended to create about 1.5 million new Green Jobs; as noted earlier, it is unclear what impact the change in government will have on this policy initiative.

Germany has been a major case study in successful Green Jobs policy – but has experienced setbacks recently. Germany’s policies to promote renewable energy, efficiency etc. generated over 30,000 jobs per year starting in 2004. Some estimates, including a recent study for the Ministry of Environment, put the figure at 370,000 jobs created in 2012 alone, just in the renewable energy sector. Towards the end of 2012, thousands of jobs in solar and other industries were reported lost in Germany because of price wars and competition with China and German renewable energy companies going bankrupt. It is unclear what the exact situation is in Germany just now with regard to Green Jobs, but the commitment remains, and the impact on the Germany economy remains significant. *Sources: we reviewed a wide variety of news articles and reports for this summary.*

Spain has created hundreds of thousands of Green Jobs in renewable energy, sustainable transport, waste management and the construction sector. These jobs are believed to have been relatively resilient in the face of the deep recession and unemployment crisis in that country (that is, compared to other jobs), thanks to “a complete body of legislation in environmental matters and different aspects related with sustainability” and accompanying regulatory machinery. Spain’s comprehensive policy approach has had “an impact on all economic activities” in that country. The renewable energy sector alone still hopes to create 200,000 Green Jobs in Spain during 2013 by developing new sources such as wave power. *Sources: we reviewed a wide variety of news articles and reports for this summary.*

Smaller Scale Policy Initiatives

AusAid funds a Green Jobs initiative in partnership with the ILO in Bangladesh, Indonesia, Nepal, Philippines, and Sri Lanka. The comprehensive initiative includes training, conferences, and green product promotional activities, including policies process (such as inter-departmental task forces) designed to embed the concept of Green Jobs into employment development policy.

Source: ILO, http://www.ilo.org/asia/whatwedo/projects/WCMS_146311/lang-en/index.htm

Green Jobs programs are a minor component of many development aid programs, such as **GIZ**, the German development aid agency, which supports Green Jobs development in Egypt (as a small component of a much larger job development program).

Examples and Case Studies

The ILO / Green Jobs Initiatives report cited above (“Working towards sustainable development Opportunities for decent work and social inclusion in a green economy,” 2012) includes many examples of many sub-national green initiatives that have generated jobs, in countries as diverse as The Philippines, Kenya, Uganda and Italy.

Extensive European examples are available in “Green Jobs and related policy frameworks: An overview of the European Union,” Sustainlabour, Feb 2013.

7. Resource efficiency and decoupling in practice

The distinction between “Resource efficiency and decoupling in practice” and “Systematic decoupling” (profiled earlier) is the difference between overall policy envelopes and more specific initiatives. However, the field of resource efficiency is enormous, much too large for this brief. Here we provide a grossly simplified review of the “State of Play” and identify several leading edge examples to provide a general indicator of the current state of developments in this topic area. This section in particular should not be seen as comprehensive, and perhaps not even fully representative.

The State of Play

On the one hand, the promotion of resource efficiency is a fundamental element of many political, economic, and industrial processes, whether or not they are linked to a Green Economy or the more specific phrase, “Sustainable Consumption and Production” (an area which received a new life, and new funding, at the Rio+20 summit). Headline programs such as those of the European Union (see “Roadmap to a Resource Efficient Europe,” an official Communication from the EU Commission to the EU Parliament, Council etc., 2011) position resource efficiency and decoupling as fundamental concepts in general economic planning, in most developed countries.

On the other hand, expert analysts routinely note that tremendous waste exists in many economic and technological systems. There are astounding opportunities to increase efficiency throughout the economies of the world, and current policy and technical solutions have only begun to scratch the surface of what is possible. (To cite just one example, a United Nations Foundation expert told a recent Expert Consultation meeting of national and academic representatives that often only 1% of the energy that goes into creating and powering an automobile actually results in the mobility of the passengers.)

At the national level, an extremely wide variety of policy drivers are already in place to drive resource efficiency, ranging from taxes to subsidies to communications programs, and much more.

Are these measures sufficient? Clearly not. Resource use continues to increase dramatically, the world over, and genuine incidents of decoupling resource throughput and waste are, as noted earlier, hard to spot in national economic and environmental data.

The leading edge of innovation in this space is therefore not easily identified in the national or subnational policy arena; a list of potential policy processes would be very long.

But the leading edge can easily be seen in the corporate and manufacturing arena. There, companies are setting explicit efficiency and decoupling goals that are clear, measurable, and potentially profound in terms of long-term impact. These are Green Growth strategies in the fullest sense of that word. We focus on three “Examples and Case Studies,” noting that (1) these are just a few of the larger scale initiatives happening in the business arena, which can actually produce a Green Economy; and (2) the best public sector policy initiatives would be those that accelerate these market-driven – and often vision-driven – processes in the private sector.

Many corporate sustainability leaders now complain that government policy is not keeping up with their own drive to innovate in this space; that is, policy is slowing them down in the race to create more resource efficiency and decoupling of revenue from physical growth.

Larger Scale Policy Initiatives

France has been experimenting with a set of environmental regulations that could lead to mandatory carbon labeling on certain types of products. Launched in mid-2012, the one-year experiment will be evaluated and could become permanent in mid-2013. Carbon labeling does not require, or equate to, resource efficiency; but labeling is generally expected to drive increased efficiency, just as labeling appliances on energy efficiency raised consumer awareness and spurred innovation in that industry.

Examples and Case Studies

Unilever: Two years ago, Unilever (a large producer of a very wide variety of consumer products) announced its intention to double its revenues while halving its environmental impact, sourcing 100% of its raw materials sustainably, and improve the health and wellbeing of 1 billion people – all by 2020. As of 2012, it was on track with these goals (called its “Sustainable Living Plan”), thanks to aggressive eco-efficiency programs and internal change processes.

Levi Strauss & Co.: Four years ago, the giant jeans and clothing maker set an environmental vision that embraces not just full decoupling, but actual restoration of environmental damage through “profitable growth.” Two years later, it raised its social goals as well, becoming the first large company to align its social sustainability goals with the Millennium Development Goals. LS&Co. has received considerable attention for breakthroughs such as its “Water<Less” technology for treating jeans, and its Worker Welfare programs in SE Asia.

Marks & Spencer: The giant UK-based retailer has continuously upped the ante on its “Plan A” sustainability program over several years, while also increasing revenues through efficiency gains and the sales of new products that support the greening of customer lifestyles. Most recently it launched a “Shwop” campaign, which encourages customers to donate old clothes to the charity Oxfam for reuse and recycling. The company sent zero waste to landfill in 2012, reduced its carbon footprint, and set high standards for purchasing materials and food sustainably (such as fish).

8. Financial sector standards and criteria

The financial sector has generally been a laggard in embracing concepts and practices related to a Green Economy – except when it comes to greening operations. Banking institutions were among the first large companies to declare themselves “carbon neutral,” largely because their operations are *directly* responsible for relatively small greenhouse gas emissions. However, financial institutions are *indirectly* responsible for enabling a great many other economic processes that result in very non-green results. They also hold many of the investment cards that are required to put a full transition to a Green Economy into play.

In the past decade, change has come slowly to the financial sector. The change that has come is largely thanks to voluntary initiatives led by visionaries and activist groups. For example, the embrace of the Equator Principles – an agreement on the ethics of lending in developing countries signed by over 70 large banks – was the result of such a voluntary initiative led by a small group of bankers, based in the Netherlands, with a strong sense of ethics and conscience.

The State of Play

Standards and criteria that might steer financial actors to invest in a Green Economy (or any other aspect of sustainable development) remain essentially voluntary in most parts of the world. However, when voluntary standards are adopted, they do exert a strong influence on the lending and investment behavior of bank and finance institutions.

The key ongoing initiatives in this space are the IFC’s “Performance Standards on Social and Environmental Sustainability,” which do require enterprises receiving IFC (World Bank) investment support to follow other voluntary guidelines such as the Forestry Stewardship Council or Marine Stewardship Council; the Equator Principles, voluntary ethical guidelines for credit risk management that incorporate social and environmental issues (and are based on the IFC Performance Standards); and China’s credit regulations with regard to its banks (see below).

Larger Scale Policy Process

The China Banking Regulatory Commission (CBRC), which is tasked with regulating and supervising banks and non-bank financial institutions, introduced Energy Conservation and Emission Reduction regulations in 2007. These require financial institutions to establish an organisational framework and internal procedures to advance green criteria. Among other things, the CBRC’s regulations require a senior banker in each regulated institution to be responsible and accountable for green credit as well as to boost lending to the renewable energy and green sectors. Regulations published in 2009 provide details of these legal responsibilities.

See: http://www.xtxh.net/Laws_Regulations/173.html

Smaller Scale Policy Initiatives of Note

The Natural Capital Declaration (NCD) is a commitment by CEOs from the finance sector to promote a set of policy actions that can in turn lead to a Green Economy. NCD was publicly launched just ahead of Rio+20; as of March 2013, it had 39 signatories from the financial sector, including the IFC and several large banks (WWF is also a supporter). The NCD calls on governments to regulate the financial sector by, among other things, requiring statements of impact on natural capital.

In numerous countries, programs exist to encourage banks to lend on topics such as energy efficiency and renewable energy. Turkey, to cite one example, has a policy and program that

supports local banks in making such loans. See:
<https://www.climateinvestmentfunds.org/cif/node/3360>

Examples and Case Studies

While examples of policy processes are hard to come by, there is a large supply of case studies regarding specific banks or financial initiatives that have embraced green and sustainable standards voluntarily. Many of these set standards and criteria for lending, investment, and portfolio management that go significantly beyond the Equator Principles.

9. Large-scale allocations of capital

Providing capital investment to finance Green Economy transition is perhaps the most challenging aspect of the Green Economy vision. The scale of the challenge is truly enormous: it has been calculated by several credible sources that trillions of dollars per year in *additional* investment funds are necessary to fund the transition to low-carbon, low-impact industry and infrastructure, and to ensure that the new infrastructure built in developing countries is green from the start.

The State of Play

The news regarding capital investment in the Green Economy is, so far, not good: there are few current bright spots on the horizon suggesting that either policy or market signals will result in the allocation of capital at the required pace. The global economic crisis (among many other factors) continues to take its toll. Many governments are currently scaling down their investments and subsidies in this area.

The one truly major capital financing initiative currently in formation, the Green Climate Fund, was agreed to become a \$100 billion operation between now and 2020; however, firm financial commitments to the Fund are not yet forthcoming, and its formation is currently shaky. Only \$5.7 million was committed to the fund as of its most recent governance meeting (March 2013).

Brighter spots are typically smaller scale. These include:

- The Global Environmental Facility, which has moved over USD 11 billion in funding since its inception in 1991
- Occasional medium scale market transactions, such as the Government of Singapore's recent decision to invest USD 150 million in Indian wind and hydroelectricity production.
See: <http://www.stockmarketwire.com/article/4556122/GIC-to-invest-100m-in-Greenko-Mauritius.html>
- The success of a private firm, Ecosystem Investment Partners, to raise over \$180 million for wetlands restoration projects
- Various loans made by development banks such as the Asian Development Banks in sustainable transport and similar projects, often in the \$100 million range

Nonetheless, the most accurate summary still appears to be: the outlook for large-scale capital investment in a Green Economy transition is currently bleak.

Commentator John Matthews, writing for the influential Fung Global Institute, notes that there is only one place that the necessary enormous amounts of capital can be found: in the 100 trillion dollar global bond market.

See: <http://www.funglobalinstitute.org/publications/articles/financing-the-transition-to-a-green-economy-246.html>

But how to move that market? A study done by Accenture for the World Economic Forum this year showed one possible strategy: using public finance as a trim tab. After calculating the need, per year, for Green Growth investment at roughly USD 5 trillion per year, the authors calculate that investments of roughly 0.7 trillion per year in *additional* investment (required for climate change mitigation and adaptation) could first be reached by mobilizing 20% of that sum from government sources (roughly \$130 billion), which would then create multipliers ... and perhaps open the door for these larger sums. See: *“The Green Investment Report: The ways and means to unlock private finance for green growth,” World Economic Forum 2013*

Larger Scale Policy Process

China is scheduled to invest over USD 1.28 trillion in the development of China’s green economy during the current 5-year plan (2011-2015). China’s level of investment is far greater than any other single capital flow into Green Economy transition, anywhere on the planet.

See: http://www.chinadaily.com.cn/china/2012cpc/2012-11/13/content_15924634.htm

Smaller Scale Policy Initiatives of Note

See notes above regarding the development banks, private investors, and occasional individual government investment.

Examples and Case Studies

A private initiative called The Green Transition Scoreboard® (created by pioneering ecological economist Hazel Henderson) tracks cumulative global investment in a Green Transition, across five sectors: Renewable Energy; Green Construction, Energy Efficiency; Corporate R&D and Cleantech, representing broad areas of investment in green technologies, many overlapping. However, the March 2013 full report could not be accessed to review the data.

WWF Germany and WWF Switzerland co-authored a report with Credit Suisse in 2011 on “Transition to a Low-Carbon Economy: The Role of Banks.” The report details the barriers and uncertainties getting in the way of investment flows, and makes the case for new banking opportunities. See <https://publications.credit-suisse.com/index.cfm/publikationen-shop/sustainability/transition-to-a-low-carbon-economy-the-role-of-banks/>

10. Sustainability and resource efficiency as a driver for business

The role of sustainability as a business driver, a source of innovation, a net-plus for the bottom line was mostly a hope just ten years ago. Today it is normal business for many of the world's largest companies, as well as many newer, smaller companies. For companies like GE or Siemens, green-badged products account for double-digit percentages of their revenues. They need little additional convincing of the “business case” for sustainability.

But while the leaders have truly leapt forward (often ahead of government and policy, as noted earlier), there remain many laggards in the business ecosystem. Some companies step forward and push hard against the wall, to expand the business space for sustainability — not just for profitability's sake, but for ethical reasons. But others lobby hard in Brussels, Washington or Beijing to reduce the “cost” of upholding environmental and social standards.

Despite the very positive news in this sector, there remains a lot to do before one can say that sustainability and resource efficiency are an everyday and obvious part of all business activity.

The State of Play

The current leading edge in this arena happens on three fronts: government policy, large corporate strategy, and smaller-scale entrepreneurship.

Countries like Sweden, France, and Germany have forward-looking policies that, in many ways, help set standards for the world at large. A recent example is the step taken by the Swedish Minister for Financial Markets, Peter Norman, who has authority over Sweden's 54 state-owned companies. He directed that all such companies — major actors in the Swedish economy, some of whom were significant laggards in sustainability terms — set more ambitious sustainability goals, and report on their progress.

Leading companies are raising the ceiling all the time. But to “raise the floor” on the lagging companies, government steerage is required.

Another example, less directive, is the success of the UK government's “Sustainable Clothing Roadmap” which has resulted in collaborations, innovations, and initiatives across that sector to reduce waste and move the sector as a whole forward at a faster clip than it would otherwise have moved.

Large companies, as described earlier, are moving forward with ambitious sustainability goals because they find it both profitable and “the right thing to do.” As this brief was being finalized, five business leaders were being interviewed as the candidates for a Swedish award in sustainability leadership. The CEO of Skanska, Johan Karlström, not only described that company's widely recognized advances in sustainability, but clearly expressed the desire for government “to demand even more from us.” This is not a unique remark, either, but a relatively common one in this context.

Leading companies also align sustainability clearly with innovation now, integrating sustainability concepts — and internal sustainability advisors — together with design, product development, and even sales, to communicate directly with consumers about how to use their products and services more efficiently. Levi Strauss, for example, works hard to re-educate consumers of its products to wash their jeans in cold water, and less often, both to make the product last longer, and to save water and energy at that point in the product lifecycle where it makes the most difference (while also working on its production processes).

The greatest excitement in this area is in the arena of smaller businesses — not small, but usually middle-sized enterprise — that have developed innovative ways of providing products and services at a profit. This arena is usually summarized in the phrase “new business models.” In practice, the business models themselves are not always so different: a product or service is sold at a certain price on the market. What’s new is the technology or the kind of service offered.

But there are some truly new business models, including especially “collaborative consumption”, where people buy *access* to a specific product or service, rather than *ownership* of that service. In effect, purchasers share resources with strangers (“collaborate”). We studied this phenomenon in detail for a corporate client last year, and can confirm that it is growing at a very fast clip, led by marquee names like Zipcar and AirBNB.

However, while the newness of collaborative consumption (and other new business models) raises hope, one should be careful about laying too much responsibility on them for large-scale change. For one thing, these companies are small in scale, and their business models have built-in boundaries to growth. Research suggests, for example, that most uses of the Zipcar system (which allows one to use a car when needed without owning it) use it because they cannot afford car ownership — which they would prefer. Zipcar-style systems will not be replacing regular car ownership models any time soon.

For another, large companies are busy copying and acquiring such businesses in order to preemptively limit the damage to their own businesses, and traditional business models. For example, Zipcar was acquired by Avis, the traditional rental car giant, while BMW and other car manufacturers have created their own “car-sharing” programs, not to reduce car ownership and use, but ultimately to increase it.

In sum, there is great promise and movement in the business sector around sustainability; standards are being raised all the time, sometimes at the instigation of large companies; and new business models have raised hope around a wave of innovation. But laggards and reactionary forces remain, and the “least common denominator” needs to be raised.

Larger Scale Policy Process

A new proposal by the European Commission would make corporate sustainability reporting essentially mandatory. The proposal takes a “report or explain” approach, and would bring a new level of transparency into the business arena in Europe (which will drive ripple effect changes globally).

Otherwise, the most interesting of these have been covered previously, including e.g. S. Korea’s push for Green Growth or Germany’s push on Green Jobs, which are strongly associated with resource efficiency and sustainable business models. Other larger-scale policy processes (using

the word “policy” broadly) active today are both well-known and well-established, such as the Global Compact, Global Reporting Initiative, and the relatively new ISO 26000 guidelines for corporate responsibility.

Smaller Scale Policy Initiatives of Note

OECD has launched a report on “Why New Business Models Matter for Green Growth,” an excellent comprehensive overview showing “the potential contribution of new business models to green growth and examines how successful models can be scaled up and accelerated through appropriate policy action.” The report draws on 55 business case studies from 14 OECD countries, combined with broader OECD research, and shows how policy, entrepreneurship, and finance have combined to create modified approaches that help eco-innovation come to market successfully. See: http://www.oecd-ilibrary.org/environment/why-new-business-models-matter-for-green-growth_5k97gk40v3In-en

Examples and Case Studies

Cars, chips and green R&D: “The automotive industry is the largest investor in green R&D with Renault / Nissan announcing a Euros 4 billion towards zero-emission mobility in 2012 and Volkswagen’s commitment to invest 76.4 billion Euros on R&D of efficient vehicles and greening their production by 2016.... The semiconductor sector is the second largest investor. Solar panel manufacturers have recently reached the milestone of developing silicon modules at a cost of \$1 per watt of capacity. While large firms such as Samsung and Philips are investing billions in new LED lighting technology.” (Benson et al.)

Concluding reflections on strategy

The development of a Green Economy is no longer just theoretical: major change and innovation processes, policy initiatives, and investment flows are under way. Advocates no longer need to “start the ball rolling,” because the ball is rolling. But given the urgency of the situation,

Green Economy need to find strategies to accelerate the *speed* at which the ball is rolling ... and, given the obstacles in its path, occasionally help the ball to roll uphill.

Where are the most crucial leverage points for accelerating change toward a Green Economy?

Some suggestions, offered to generate reflection on the part of the reader:

- Promote the accelerated use of alternative indicators, including a Green GDP or equivalent measure
- Promote new laws, incentives and regulations to drive increasing investment in the Green Economy, particularly through regulating and incentivizing the banking sector (study China’s example, cited in this briefing)
- Call on governments to honor their commitments to the Green Climate Fund, and generally focus policy and activist attention on the under-commitment of investment funds to transform the economy
- Highlight, promote, and attempt to accelerate the adoption of new monetization tools for putting environmental services and costs onto the balance sheet
- Sponsor a serious review process to tackle grand challenges such as the economics of dis-investing in fossil fuels
- Partner up with labor unions on the promotion of Green Jobs strategies, using best available analyses and models, and focused especially on the problems of youth unemployment
- Partner with financial institutions on the development of new Green Economy financing strategies and initiatives