PAPER 8: MANAGING NATURAL CAPITAL

MANAGING NATURAL CAPITAL: ONE PART OF A BIG PICTURE

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ABOUT GLOBAL TRANSITION 2012

Global Transition 2012 is a collaborative initiative between Stakeholder Forum and nef (new economics foundation) that focusses on the Green and fair Economy theme towards the UN Conference on Sustainable Development in 2012 (UNCSD), also known as 'Rio+20' and 'Earth Summit 2012'.

GOAL

To achieve an outcome from the UNCSD 2012 that catalyses a 'Global Transition' to an economy that maximizes wellbeing, operates within environmental limits and is capable of coping and adapting to global environmental change.

PURPOSE

To build a global civil society and stakeholder movement to promote alternative models of economy that can deliver sustainable development to people, countries and generations that builds on the three pillars of sustainable development: social, environmental and economic.

THE INITIATIVE CONSISTS OF THE FOLLOWING ACTIVITIES:

- Research and Thinking and Policy and Advocacy: to **commission** and **publish** a series of research reports and think-pieces that will provide the evidence based analysis and address critical components of a Global Transition and translating research and thinking into key policy outputs towards Rio+20 and beyond and organising workshops with governments to discuss policy options; and **building capacity** and **developing tools** for countries to institute policies and systems that move towards a Global Transition;
- Coalition Building and Dialogue: **building a coalition** of actors and organisations from the global North and South committed to the principles and objectives of a Global Transition;
- Submissions: making **official submissions** to the Rio+20 process based on think pieces and dialogue;
- Information and Resources: publishing informative **guides** and **briefings** on aspects of the green economy; in particular developing a 'how to guide' for the green economy Roadmap work that is underway in a range of sectors and contexts.

ABOUT STAKEHOLDER FORUM

Stakeholder Forum is an international organisation working to advance sustainable development and promote stakeholder democracy at a global level. Our work aims to enhance open, accountable and participatory international decision-making on sustainable development. Stakeholder Forum works across four key areas: Global Policy and Advocacy; Stakeholder Engagement; Media and Communications; and Capacity Building. Our Global Transition 2012 initiative sits within our work on Global Policy and Advocacy.

ABOUT nef

nef (the new economics foundation) is an independent think-and-do tank that inspires and demonstrates real economic well-being. nef aims to improve quality of life by promoting innovative solutions that challenge mainstream thinking on economic, environment and social issues. We work in partnership and put people and the planet first.

MORE INFORMATION

If you would like to provide feedback on this paper, get involved in the Global Transition 2012 initiative, or put yourself forward to write a paper/blog, please contact Kirsty Schneeberger, Senior Project Officer at Stakeholder Forum: **kirstys@stakeholderforum.org**

ABSTRACT

The natural world has a lot to teach us. Above all, it teaches us about systems and cycles; that altering one component of a system, however small, can have wider implications within and beyond a given cycle. Human society, the planet and the economy are all systems and are all bound together in intricate relationships. Only when we begin to understand this bigger picture can we tackle the systemic problems facing us. Here we take a short journey through planetary science to grasp some of the dimensions of those relationships, and posit a series of solutions for affecting the kind of systemic transformation that we urgently need to ensure the health of the planet and of people.

Economic theory (and common sense) tells us that when something is valuable, and it is free, its use tends to infinity - this explains why trees, biodiversity, freshwater and atmospheric space for carbon are all being used 'like there is no tomorrow'. It also assumes that when something is exhausted (or too expensive), a substitute is almost certain to be found.

Economic theory then takes this substitution concept up to a macro level and thinks of the 'trade-off' between environment and economy. The logic is that we can have 'more environment' if we are prepared to put up with 'less economy', or we can have 'less environment' if we want a bigger economy. The traditional economic world view that dominates the political spectrum is based on infinite resources, substitution, and ultimately this trade-off between environment and economy.

In the following paper we take a systemic view of natural capital and the role that it plays in sustaining the human species and our economic system. We will start with a brief journey into planetary science then, taking stock of the solutions being offered by current economic thinking, posit the role of green economy for transforming the current trajectory. Here, we are tackling problems not from the perspective of 'what is politically feasible?' but from that of 'what is absolutely necessary?': what is necessary in order to ensure that the operating system on which we all depend continues to provide people, communities and all economic activity with a safe space in which to exist.

INTRODUCTION: BACK TO BASICS

In order to understand the viability of our current economic system, we first need to understand the dimensions, and indeed limitations, of the natural system on which our economy depends. Let us take a quick journey into planetary science.

Gravitational forces, generated both by the earth orbiting the sun and the moon orbiting the planet, create movement and flow of magma, collision of tectonic plates and surfacing of minerals. These minerals are weathered and distributed across the earth's surface, primarily by water. The constant heating and cooling created by the earth's rotation accelerates the chemical reactions between newly released minerals (soils and rocks) and atmospheric gases. These chemical reactions are the pool from which life emerged, creating single cells capable of using minerals and energy from the sun to photosynthesise; generating proteins for their own growth, and respiring to bring about higher levels of oxygen and a more hospitable atmosphere.

The ever more stable conditions generated by this process allow for more complex plants to develop, which in turn helps to create the kind of environment in which animals can evolve and feed on plants and each other. Animal life adds new impetus to the constantly developing web that drives plants to evolve, which in turn generates new opportunities for more advanced animal life to emerge. This increasingly complex system requires that more energy is captured from the sun, and ultimately results in global biophysical processes – the nitrogen cycle, the carbon cycle, the hydrological cycle and the phosphorous cycle. These are huge chemical processes involving flows and reactions between the organic (life) and inorganic (materials), which help to maintain stable conditions, generate yet more diversity and make the overall system even more stable; more resilient to shocks and more productive. It becomes a system capable of creating humans.

However, as the human species have become more populous and as we have spread out with our cities and our agriculture we have reduced biodiversity to fewer species, fewer numbers and degraded key biodiversity hotspots such as reefs, now bleached and dying, and rainforests, being slashed, burned and replaced with monoculture crops. This reduction results in the significantly decreased productivity of biophysical processes,

which in turn affects the ability of the planet to sustain life in its current numbers, diversity and quality. In short, we have started to unravel the progress of four and a half billion years of hard-won evolution, and to head backwards towards less hospitable conditions for humans and many other species.

THE EVIDENCE

There are three main criteria for assessing a system's status: its capacity, its loading and its productivity.

The best science that contributes to environmental systems thinking around natural capital today can be clustered into three groupings: climate science, emerging analysis around the nine planetary boundaries[2], and the Millennium Ecosystem Reports[3]. Taken together these reveal:

- A system that is being eroded: biodiversity that is plummeting and at critical levels, intensifying ocean acidification, stressed freshwater systems, accelerating land conversion, loss of forests and degradation of soils.
- A system that is being overloaded: critically breached carbon and nitrogen cycles, and phosphorous, aerosol and chemical loading heading toward critical overload.
- A system that is declining in productivity (slowing down):15 out of the 24 ecosystem services are in decline.
- Further, if you overload a system at the same time as you erode its capacity to function then you accelerate change through two distinct phases: firstly, 'heat up and slow down', and secondly, collapse.

We are currently in the 'heat up-slow down' of planetary systems' change, and we are not sure what collapse looks like and when it will happen. Current climate science suggests that two degrees warming will accelerate degradation of the system and then tip it into an irreversible decline, significantly reducing its ability to provide hospitable conditions for human life.

To conclude, what this brief diversion tells us is that the planetary system is the primary system, the life support system, and the operating system that enables us to live. This operating system is under considerable stress and heading towards dangerous and run-away changes.

The economist's perspective

The answer that most traditional economists offer is one of technological advance. Geo-engineering solutions, including ideas such as giant balloons that reflect the sun, are discussed with straight faces. For the most part however, current economic thinking simply ignores the flaws of our current paradigm and sticks steadfastly to fundamental assumptions.

Unfortunately, technology is a very long shot. We do not yet have the ability to substitute the extraordinarily efficient and productive biophysical processes that create stable conditions for life, so the only rational conclusion is that our survival and our prosperity depend on the natural world and its processes. This dependency is not understood by many mainstream economists and politicians.

The main achievement of the Stern Review on the Economics of Climate Change[4] was to establish that the environment and the economy are linked in a looped, rather than linear, relationship. When you breach critical planetary-system boundaries you also breach the dimensions of our economy. It is not just that the economy affects the environment; it is also that problems for the environment have a feedback effect on the success of the economy. For those who do not care about global average temperatures, sea-level rises, the extinction of species, they need only look at the implications that these changes will have on GDP and, ultimately, broader society.

Despite the Stern Review, and subsequently The Economics of Ecosystems and Biodiversity (TEEB) report[5], the economics of a different age still dominates our thinking. That previous era was one in which we had only 1.7 billion people living on this planet; an age when our consumption patterns were relatively limited. As the

[2]http://www.stockholmresilience.org/research/researchnews/tippingtowardstheunknown/thenineplanetaryboundaries.4.1fe8f33123572b59ab80007039.html

[3] http://www.maweb.org/en/index.aspx

[4] http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/stern_review_report.htm

[5] http://www.teebweb.org/LinkClick.aspx?fileticket=u2fMSQoWJf0%3d&tabid=1278&language=en-US

population mushrooms towards 10 billion aspiring consumers, continuing economic assumptions based on infinite resources, substitution and trade-off are starting to crack the whole foundations of our society.

Learning from ecosystems

We need an economic system that is ecologically literate and ecologically rational - in other words one that is informed by science. We need an economic system that understands that a healthy environment is needed to protect a healthy society; one that invests in our natural systems in order to protect and restore them, and provides the services that sustain life and economic activity.

However, we should not continue to abdicate all responsibility for running the world to economics and markets (even when that economy is more ecologically rationale). We do not put a price on human life, so we should not have to put a price on the web of life that created us, sustains us and that we remain a part of despite our collective vandalism.

Instead, what is required is a governance and economic system that understands how the physical world works; and that we can pursue economic and societal prosperity by investing in natural capital.

In order to invest and protect natural capital we must understand our ecosystems better. We must understand their minimum conditions (size, integrity, levels of biodiversity, needs for interconnectivity) and their potential productivity (what are the sustainable levels of harvesting, extraction and loading). Improving our scientific understanding of natural systems will require investment and political prioritisation.

Ecosystems need to be treated with the precautionary care that their importance necessitates. This means creating and enforcing a global green infrastructure (connected, healthy and of necessary scale that connects and protects Ecosystems and sustainably manages its extractions and loading. This is can be created through law and paid for through taxes and markets. This is putting science at the heart of governance and at the heart of economics.

Accelerating the transition to a green economy

A green economy would help manage and pay for that healthy, productive green infrastructure (natural capital) for today and for future generations. It would share the benefits of natural resources more equitably across the world by taxing those that use the most resource or create the most pollutants; it would also subsidise those innovations that provide the best (lowest resource and pollutant) solutions for human needs. It would create efficient markets for the 'science set' sustainable levels of services and resource that green infrastructure can provide. It would invest in enhancing the productivity of that green infrastructure. It would enable communities to manage, own and protect their natural capital, creating new jobs especially among the rural poor. It would help transform human systems - particularly food, housing, transport and energy, where 80% of all ecological impact is created - so that they not only deliver to human needs, but also strengthen the green infrastructure. A green economy would help in the allocation of available resources to achieve the most equitable distribution of benefits, protecting the poor and creating fair access and opportunities for all.
In summary, some of the policies that could be discussed to build a resilient, productive green infrastructure are:

International agreement on metrics to define a healthy natural system, building on and bringing together work on the Millennium Ecosystem Assessment, nine planetary boundaries, ecological footprint and other measures. This should enable required investment to develop, synthesise and convey this knowledge to the heart of governance institutions. This could lead to a legally binding 'Environmental Limits Treaty'.

Creating international and national spatial action plans to establish an international green infrastructure. These could define which natural systems are set aside for ecosystem services, which managed for resources, what spaces are available for development and what ecosystems need to be restored (for example improving eroded soils, depleted water bodies, and degraded forests).

Programmes for the valuation of natural capital at global, regional and national levels, run in-partnership between global and national environmental bodies, global economic institutions, national treasury ministries and civil society, in order to develop stronger asset understanding, governance and market parameters.

Agreement on international and national payment for ecosystem services (PES) systems, supported through the negotiation of a protocol to the Convention on Biological Diversity. These systems would bring together

financing mechanisms and new markets for services and sustainable resources, connecting to improved and legally enforced certification schemes; they would prioritise locally managed natural assets, building jobs and incomes for the rural poor thereby supporting poverty alleviation.

Freshwater – develop an integrated water resource management system and the adoption of the international convention on trans-boundary water courses. Management of water resources would also be an opportunity to provide jobs for the rural poor.

Marine environment and oceans – establishment of marine protected areas, and laws and markets for the sustainable harvesting of marine resources including fishing; moving towards managing the whole marine environment.

Overall, the fundamental issue of managing natural capital to create a resilient and productive green infrastructure is only one part of a transformation to a green economy; one component of a much more intricate system (see Figure 1). These suggestions must be taken alongside change in four other supportive and connected areas, all of which our coalition has policy suggestions and solutions:

Investing in people: a green economy is one that allocates environmental benefits and costs fairly to achieve a more just and equitable society. This means committing to transparent and affirmative action for inclusive growth on the part of all governments; ensuring the participation of young people, women, poor and low-skilled in a new economy; and investing in re-skilling workers and communities as we undergo a transition to a low-carbon economy.

Greening high impact sectors and services: a green economy is one that is driven by green economic services and industries that provide decent work and employment prospects. This means promoting equitable ownership and workers' rights in emerging industries; tighter regulation and standards on the part of businesses and governments; and creating the incentives for innovation across the consumption-production value chain.

Driving investment and financial flows: a green economy is one that will drive investment and financial flows towards restoring our environment and generating a better quality of life for all. This means reforming subsidies, taxation and public sector financing to meet environmental and societal needs rather than just GDP growth; driving investment towards new private sector markets; and putting an end to short-term market speculation.

Improving governance and measurement: green economic governance will redefine 'progress' in light of environmental and societal needs; and make governments, businesses and consumers more accountable for their actions. This means introducing new metrics, beyond GDP, that measure well being and environmental health; generating long-term national action plans for an economic transition; and reforming corporate accountability standards to ensure that bad practice is penalised and good practice is rewarded

Figure 1: A Green Economy

CONCLUSION

In writing this paper we were asked to 'think big', which we take to mean 'not yet possible'. It will be interesting to see how quickly the 'politically and economically impossible' will shift to the 'politically and economically vital' given the scale and severity of the challenges we face as a human species and as a planet.

The transformation to a green economy is already well underway. We are seeing unprecedented levels of investment being driven towards new markets, new sectors and new services. That investment is bringing new actors to the table on the local, national and international scale. However, this drive of investment must be guided and shaped by a systemic understanding of the interrelatedness of our natural systems, our economic systems and our societal systems. The Rio Earth summit offers a good platform to accelerate this kind of big thinking.