BRIEFING

Green Economy

WHAT DO WE MEAN BY GREEN ECONOMY?

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MAY 2012

UNEP

Summary

Reinvigorated by the United Nations Environment Programme (UNEP), a global discussion and national activities on green economy transitions have regained momentum since 2008. The increase in interest is, among other things, due to our growing understanding of the similarity and interlinkages between many of the recent financial, economic, environmental and social crises.

The 2008 global financial crisis focused attention not only on the financial losses, and implications for economies, jobs and housing, but also raised questions as to the fundamental imbalance in our economies. The choice of capital allocation - investment in property, fossil fuels and financial assets, rather than in measures to encourage resource efficiency - has created destructive imbalances. A further common element to all these crises is the focus of decision making on short time horizons and trust in what has often proven to be an incomplete evidence base including a lack of proper accounting, for example as regards the cost of climate change and biodiversity.

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Produced by: UNEP Division of Communications and Public Information

Initiatives such as UNEP's 'Green Economy Initiative' and the OECD's 'Green Growth strategy' seek to place economic performance within environmental and social boundaries. UNEP defines a green economy as "one 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 OECD Green Growth Report defines green growth as "fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies". Hence, both operate on the basis of development within environmental limits.

However, the pertinent political question concerns the nature of these limits and how we can live more sustainably within them. This will frame discussions at the Rio+20 Conference (the 2012 United Nations Conference on Sustainable Development, UNCSD) being held on the 20-22 June.

Rio+20 will focus on two main themes: the green economy in the context of sustainable development and poverty eradication; and the institutional framework for sustainable development. The green economy theme has attracted relatively more attention to date in preparatory discussions and supporting documentation. Preparatory discussions show that perceptions of the green economy theme are extremely diverse. Concerns have been raised on the implications of what the green economy means in practice and steps to be taken to achieve it. Although some of these concerns have been partly addressed during the preparatory stages, certain reservations remain.

Within the EU, an approach to a green economy is evolving. The objectives of the EU's economic strategy, Europe 2020, are building 'smart, sustainable and inclusive growth' where sustainable is characterised as low-carbon and resource-efficient. Several strategic initiatives have been launched since the 2010 publication of Europe 2020 (including the Roadmap for a resource-efficient Europe), which have elaborated what a low-carbon, resource-efficient economy might entail. While none address the 'green economy' as such, there is considerable focus on low carbon pathways, particularly in the power generation and transport sectors, the development of quite ambitious "milestones" for improved resource efficiency and some recognition of a range of specific objectives and tools that could contribute towards a green economy.

In the run-up to 'Rio+20', the European Commission published its contribution to preparations for the Conference: 'Rio+20: towards the green economy and better governance'. The Communication notes that responses to the continuing challenges and crisis 'will not come from slowing growth, but rather from promoting the right kind of growth'. The Commission calls for the adoption of a 'Green Economy Roadmap' at Rio+20, setting out a menu of actions, a timetable for implementation, targets and indicators.

The EU has funded many research projects which provide valuable insights, evidence and arguments that merit further consideration in the run up to Rio. They point to the value of looking at a number of interlinked building blocks, including understanding and avoiding unacceptable trade-offs, proactive risk management, investment in natural capital, resource efficiency and actions to reach absolute decoupling if we are to truly achieve ambitious results at the Rio+20 summit. The nine key principles of the green economy as agreed by the UNEP Governing Council - sustainable development, equity, prosperity and wellbeing, improving the natural world, decision-making, accountability, resilience, sustainable consumption and production; and investing for the future – are central in helping us to create 'the future we want'.

1. INTRODUCTION – WHAT IS A GREEN ECONOMY?

This briefing provides an introduction to the green economy concept as it has developed to date, key policy tools to support a green economy and potential future steps in the EU's on-going development of a green economy approach. It also sets out key findings from research projects funded through the European Commission's Research Framework Programmes with results relevant to the green economy. It has been written by Doreen Fedrigo-Fazio and Patrick ten Brink of IEEP, with support from IEEP colleagues Samuela Bassi, Leonardo Mazza, Sonia Rouabhi, Axel Volkery, Emma Watkins, and Sirini Withana. Further support was provided by Jennifer Emond and Thierry Lucas from UNEP. This briefing covers:

- What is a green economy?
- Green economy, green growth and sustainable development
- Green economy and environmental challenges
- Policy options and research insights for a green economy
- The way forward

Annex 1 of this briefing lists a number of FP6 and FP7 projects with relevance to the green economy.[1]

The global financial crisis that began in 2008 triggered questioning of the soundness of economic models and policies as they have developed over past decades. This questioning was amplified by the identification of various interrelated global crises (environmental and social) and the role of traditional views of economic growth in creating or worsening these. The rise and spread of the concept of the 'green economy' has stemmed from the identification of the need to address multiple issues in an integrated way, to overcome these existing interrelated crises and to better avoid any further ones.

Some systemic environmental problems have become more evident in recent years, with climate change topping the media and political attention, closely followed by biodiversity loss in major part due to habitat destruction. Pressure from increasing resource demand has also led to availability scares of some resources (raw materials) that have become economically important and are central to a green economy, and in other basic resources such as water and phosphorus. Speculation on food commodities was also central in driving up prices for important staple foods, causing social hardship and riots in some countries. In industrialised countries, waste generation and most importantly the illegal shipment of hazardous wastes continues to cause the double negative impacts of wasting renewable and non-renewable resources and polluting the environment.

Despite international political discussion on sustainable development dating back at least four decades, the underlying factor helping to make environmental problems systemic is the economic system not taking appropriate account of natural capital assets nor of environmental and human health impacts. When the 2008 global financial crisis highlighted further weaknesses in most of the world's economic approaches and policies, the green economy concept was promoted as a means of reforming traditional economics to better reflect natural and human/social capital. In so doing, economic development could be stimulated whilst nourishing natural and human capital and respecting planetary limits. Central to the development and promotion of the green economy as a means of overcoming a number of crises was the United Nations Environment Programme, notably its Green Economy Initiative[1] (GEI).

What is a green economy?

The above-mentioned UNEP Green Economy Initiative (GEI) defines a green economy as *"one 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**,

[1] This main briefing is complemented by the supporting briefing: the ***Green Economy in the European Union,*** which explores what the EU is doing as regards the 10 sectors identified by UNEP as key for the transition to a green economy, and presents key EU research insights. Two supporting context briefings provide additional information for the main briefing and research insights: the ***Green Economy in the context of Rio+20***, and *the* ***Green Economy and sustainable development***.

resource efficient and **socially inclusive**."[2] Others such as OECD, World Bank and Global Green Growth Institute (GGGI) use the term 'green growth', which is similar to the concept of green economy yet slightly different in terms of its implementation approach. The OECD Green Growth Report[3] defines green growth as *"fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies"*. Hence, both operate on the basis of **development within planetary boundaries**. Growth is an element of both concepts, but the question remains what kind of growth and how do we come back, or remain, within planetary limits. In developing countries, roughly one billion people lack access to energy, water, sanitation, shelter, food, clothing and transport. Without significant growth of goods and services, it is impossible to lift these people out of poverty. Although growth does not always translate into poverty reduction, poverty reduction is always associated with growth whichever the measure of poverty is used. Whereas in industrialised countries, consumption and production patterns are unsustainable, using considerable amounts of natural resources and with related negative environmental and sometimes social impacts.

The green economy seeks to drive the growth of GDP and jobs through shifting investments towards clean technologies and natural capital as well as human resources and social institutions. It focuses on the shifting of public and private investment as a decisive instrument to achieve growth, environmental improvement, poverty eradication and social equity, with policy reforms supporting the shift. In a green economy, social dimensions are considered as targets for shifted investments.

The UNEP's Green Economy Report (GER) demonstrates that by investing two per cent of global GDP in greening ten key economic sectors,[2] significant economic, environmental and social gains could be achieved providing the right enabling environment. Fiscal policy reforms, proper valuation of natural capital, innovation policy for green technologies, right incentives for private investment and better engagement with business are such examples. These and other actions towards a green economy are considered in more detail in Section 3.

By using a macro-economic model, GER shows that in the longer term, a transition to a green economy could bring about higher GDP growth rate and job creation with reduced ecological footprints.

The OECD's Green Growth Strategy[4] was presented in 2011 as a response to the global financial crisis on request from its member countries, and as the OECD's contribution to the Rio+20 process (see *Supporting Context Briefing: Green Economy in the context of Rio+20* for more details).

According to the OECD, green growth should be conceived as a strategic complement to existing environmental and economic policy reform priorities. The Strategy provides a practical framework for governments in developed countries through which a green growth strategy would deliver opportunities for growth by:

- fostering innovation, leading to news ways of creating value and addressing environment problems;
- incentives for greater efficiency in the use of resources and natural assets;
- stimulating demand for green technologies creation of new markets;
- boosting of investor's confidence through greater predictability; and
- allowing more balanced macroeconomic conditions, in particular through its contribution to fiscal consolidation.

[2] Four (agriculture, fisheries, water and forests) are fundamentally interlinked with nature, natural resources and ecosystem services and many activities focus on investing in natural capital. The other six (energy, manufacturing, waste, buildings, transport and tourism) are sectors where green economy initiatives would tend to focus more on reducing energy and resource consumption/use. This focus on ten sectors does not suggest that the greening of other sectors is unimportant; the transition to a green economy will need to take place across all sectors to be fully achieved, but there are clearly ten priority sectors where immediate attention is merited. Cities also feature as a separate entity, as the majority of the world's population lives in these conurbations and due to their impacts.

2. THE ISSUE AT STAKE: GREEN ECONOMY AND ENVIRONMENTAL CHALLENGES

Since the Industrial Revolution, the impacts of human behaviour have had increasingly negative effects on the planet and its ability to continue providing a functioning environment for the various species making up its inhabitants, while at the same time bringing millions out of poverty, and supporting development, wellbeing and prosperity. This has been a major trade-off which is increasingly seen as not being sustainable given the impacts that risk undermining the progress made. This is particularly true given the rise of emerging economies with significant population sizes and a growing global population leading to a subsequent increased demand for resources **within a more resource constrained world**.

A short tour of key challenges starts with **climate change**. In 2007, the Intergovernmental Panel on Climate Change (IPCC) published its 4th Assessment Report[5] in which it identified that **unmitigated climate change was likely in the long term to exceed the capacities of natural, managed and human systems to adapt. Climate change mitigation activities** will need to continue to be developed in order to achieve lower stabilisation levels of atmospheric CO_2.

The crisis of **biodiversity loss** has also become increasingly evident in recent years. The Millennium Ecosystem Assessment[6] (MA) assessed the consequences of ecosystem change for human well-being. Published in 2005, the headline results were that **60% of the world's ecosystems were in a degraded state, putting in question their continuing functioning or existence**. In other words, development was far from being sustainable.

Following on from the MA, another international study on the Economics of Ecosystems and Biodiversity (TEEB) was launched in 2007. TEEB aimed "to draw attention to the global economic benefits of biodiversity, to highlight the growing costs of biodiversity loss and ecosystem degradation, and to draw together expertise from the fields of science, economics and policy to enable practical actions moving forward."[7]

In addition to climate change and biodiversity loss, human **over-exploitation of natural resources** is also resulting in the breaching of some natural thresholds. This is made evident through severe fish stock decline or total collapse, desertification, land degradation, and scarcities in key natural resources including water, phosphorus (important in agriculture) and metals and minerals used in electronics (some of which are essential to the green economy).

The solutions and opportunities provided by the green economy can help to address many of the above negative impacts while at the same time supporting (some types of) economic development. A green economy requires robust and sound **policy frameworks** that are properly implemented and enforced. These need to be supported by **market and economic reform** to avoid traditional economic models and theories which under-value nature and natural capital and invest in environmentally and socially damaging activities because these appear to be most lucrative. Instead, markets and economic strategies in a green economy need to be shaped to support the policy frameworks that set out the rules of the game, and encourage investment in good environmental performance, in natural capital and in enabling solutions to environmental and social challenges.

Green economy strategies are needed if multiple challenges are to be overcome. Investing in natural capital will better ensure that a healthy, resilient planet is supported. As we shall see in the next section, such investments can cost less than building traditional 'grey' infrastructure (e.g. wastewater treatment plants) while also bringing more positive benefits such as wider variety in the use of natural capital which leads to individual and community wellbeing, greater job creation, social equity, and community cohesion.

3. POLICY OPTIONS AND RESEARCH INSIGHT TOWARDS A GREENER ECONOMY

The 21st century demands an outlook and the use of tools that can overcome challenges of a more 'crowded' planet, characterised by increased uncertainty (political, environmental, social) and increased pressure to share limited resources more equitably.

In the EU, efforts made by individual Member States and at EU level to green economies have been made for decades, including taxes on specific pollutants, energy and transport. In its latest economic strategy, *Europe 2020*, the EU's objectives are stated as achieving economic 'transformation' to make growth 'smart,

sustainable and inclusive' and to achieve a 'low-carbon, resource-efficient economy'[8]. (See Supporting Briefing: *Green Economy in the European Union* for more details.)

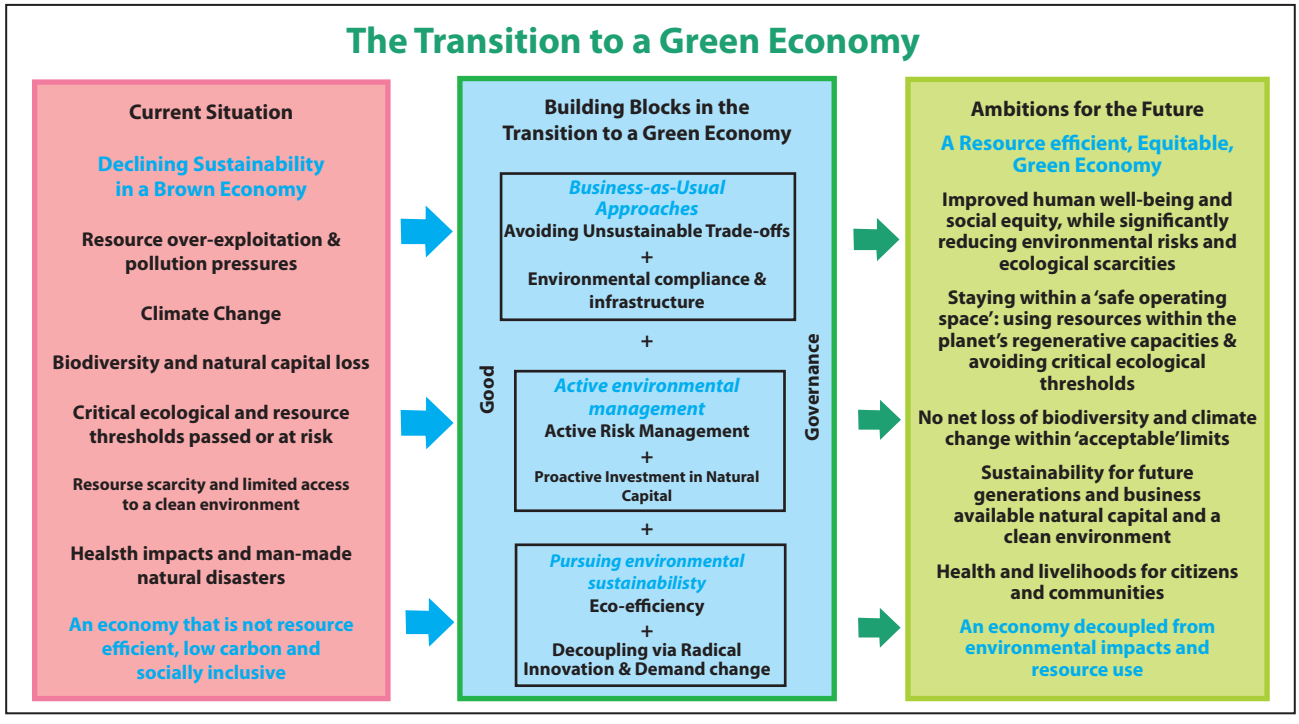
Efforts to achieve a green economy or green growth at EU level can be achieved in a range of often complementary ways: by EU (and national) policies and their objectives, strategies, plans and laws and by the use of EU funds, e.g. by integrating sustainability criteria into funding mechanisms (such as Cohesion/ Regional Policy and the EU budget). To structure ways forward for the transition to a green economy and show where different research projects contribute, we focus in this section on six "building blocks" for a transition from a 'brown' to a 'green' economy (See Box 1 below for schematic image). Broadly speaking there has been a 'traditional approach' to addressing the challenges – by understanding and avoiding unsustainable trade-offs and investing in environmental infrastructures (water supply, waste water treatment, waste management and air pollution control) to comply with environmental objectives. There has recently been a new focus on 'active environmental management' approaches, which include active risk management (e.g. spatial planning and communication for flood risk) and proactive investment in natural capital (e.g. restoration). Finally there is a growing recognition of the need for additional measures in pursuit of true sustainable development – eco/resource efficiency and use of more radical innovation (new technologies/techniques) and demand changes for achieving decoupling of our economy and development from environmental impacts

These build upon a range of research projects as well as projects undertaken for other EU services such as DG Regio[9] that have also built on past research. Although the early projects looked specifically at EU structural funds, the building blocks have relevance to building the green economy more widely - not only other EU programmes, sector policies and their implementation, but also for the transition to the green economy more widely, and support by other governance levels (e.g. cities, regions, countries), as many governance decisions (investment, infrastructure creation, etc.) are taken at different levels. The building blocks and the contribution of research projects in each area are discussed in turn below.

a) ***Better balancing between economic, environmental and social aspects – avoiding unsustainable trade-offs***

Unsustainable trade-offs have been created through the misallocation of capital, and economic development and growth strategies encouraging the accumulation

Box 1: Schematic diagram of the building blocks forming the transition to a green economy



of physical, financial and human capital, while also encouraging incredible degradation and depletion of natural capital. Often, the different types of capital (natural, social, manufactured and financial) are seen in opposition to each other, i.e. economic policy undervalues natural capital in order to encourage financial capital; similarly, social capital can be seen as reducing or restricting financial capital. These opposing positions are called 'trade-offs', where one gains and therefore another loses. In practice, policies and use of funds lead to a range of 'trade-offs' sometimes intentionally (i.e. choosing priorities), and sometimes unaware of the existence, scale and implications of the trade-offs. Avoiding inappropriate trade-offs is a key building block of any strategy to a green economy.

This can be done by redefining objectives, and by better identifying the benefits and negative impacts of different policy/investment decisions. Such measures include environmentally harmful subsidies (EHS) reforms, and use of tools like Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA), and Impact Assessment (IA).

The FP6 Aquastress project aimed to deliver methodologies to help actors at different levels of involvement and at different stages of planning processes to mitigate water stress problems. The project drew on both academic and practitioner skills to generate knowledge in technological, operational management, policy, socio-economic, and environmental domains. The project undertook economic analysis in various case studies in eight aquatic catchment areas including in six EU countries (Bulgaria, Cyprus, Italy, the Netherlands, Portugal, and Poland) and in neighbouring Morocco. In using a tool to better value the ecosystem services provided by different water bodies, the project was able to propose more effective integrated management tools, including water pricing via local taxes, to help *use, the project predicted how soils can be better managed to improve the long-term incomes of European farmers, to mitigate climate change and reduce nutrient and chemical inputs. This can be achieved by conserving soil biodiversity, the natural capital that generates ecosystem services. Ecosystem services link farmers' economic decision making with production, land use (food vs. biofuel), soil diversity and sustainability. This information can be useful for a broad range of decision and policymakers, in particular the on-going reform of the Common Agricultural Policy (CAP), but also environmental policy.*" The project produced easy-to-read policy briefs on issues such as soil biodiversity and intensive agriculture; agriculture and ecosystem services provided by retention of nutrients; and on agricultural production, soil fertility and farmers economy. According to a policy brief on 'Soil as Natural Capital', "*...unsustainable agriculture can accelerate water and wind erosion, drain soil organic matter and cause loss of soil fertility. For example overgrazing by cattle and use of heavy machinery can cause soil compaction, and irrigation can lead to salinisation and water logging. This all has a profound impact on soil quality and diminishes crop yields.* ***Yearly economic losses in affected agricultural areas in Europe are estimated at around €53 euros per hectare.***"

b) Environmental compliance and environmental infrastructures

The necessity for policy frameworks on key environmental issues in setting out political objectives, targets, and measures is evident if concerted action is to be required, encouraged and supported. Such policy frameworks usually set out the 'rules of the game', and provide the framework within which green economy objectives and actions can be set. Ensuring effective development of the green economy requires some supporting tools, in addition to the policy framework. These include policy coherence (between different environmental