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## The green economy and sustainable development: an uneasy balance?

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**Abstract.** The United Nations Conference on Sustainable Development (or Rio+20) was conceived at a time of great concern for the health of the world economy. In this atmosphere ‘green economy’ was chosen as one of two central themes for the conference, building on a burgeoning body of literature on the green economy and growth. This research examines the relationship and influence between the double crisis and the rise of ‘greening’ as part of the solution. The aim is to understand what defines and distinguishes the proposals contained in twenty-four sources on the green economy (including policy documents by international agencies and think tanks, and research papers), and what is the meaning and implication of the rising greening agenda for sustainable development as it enters the 21st century. Through a systematic qualitative analysis of textual material, three categories of discourse that can illuminate the meaning and implication of greening are identified: ‘almost business as usual’, ‘greening’, and ‘all change’. An analysis of their relationship with Dryzek’s classification of environmental discourse leads to the identification of three interrelated patterns: (1) scarcity and limits, (2) means and ends, and (3) reductionism and unity—which deepen our understanding of the tensions between emerging propositions. The patterns help explain the meaning and implications of greening for sustainable development, revealing an economisation and polarisation of discourses, the persisting weak interpretation of sustainable development, and a tension between the fixing or shifting of dominant socioeconomic paradigms that underpin its conceptualisation.

**Keywords:** green economy, sustainable development, limits, scarcity, paradigm shift, Rio+20

### 1 Introduction

The steadily unfolding ecological crisis announced in the 1960s has always been accompanied by less steady, but nonetheless recurring, financial and economic crises (EEA, 2013; Foster and Magdoff, 2009).<sup>(1)</sup> The transition between millennia was marked by the exacerbation of both. In developed nations economic growth (in terms of GDP) tumbled, and unemployment and inequality of wealth and income reached new heights, producing a knock-on effect on emerging economies (Crotty, 2012; OECD, 2011a; *The Economist* 2012). The crisis has therefore focused the attention of international organisations (for example, ILO, 2012; UN-CEB, 2012), commentators, and politicians in developed countries and beyond on the need to reinvigorate GDP growth to create jobs (for example, Meltzer et al, 2013; WEF, 2013).<sup>(2)</sup> As the machine of growth struggled with the latest economic crisis, news of the

<sup>(1)</sup>However, one could reflect on the strategic choice of the term ‘crisis’, both with respect to the environment and in relation to finance and the economy, given the underlying structural origins of both. This goes beyond the scope of this paper, but see, for example, Foster and Magdoff (2009) and Swyngedouw (2010).

<sup>(2)</sup>Although the rhetoric of growth and jobs persists, it has delivered limited results to date in OECD countries, not least as a result of the austerity plans being imposed in many European countries (for example, Meltzer et al, 2013; Skidelsky, 2010).

‘other’ crisis affecting the state of the planet continued to flow through media and scientific channels of communication. Analyses of the world’s ecosystems health in 2005 (MEA, 2005) were followed by alarming findings in the realm of climate change (IPCC, 2007): news of the breaching of three of the planetary ‘boundaries’ that provide a safe operating system for humanity [the rate of biodiversity loss, climate change, and human interference with the nitrogen cycle (Rockström et al, 2009)] substantiated the realisation that human activities “now rival global geophysical processes” (Steffen et al, 2011, page 739), a phenomenon referred to as the ‘Anthropocene’.

### 1.1 A green response to economies and environments in crisis

Against this backdrop, and the uncertain recovery of the global economy, governments of mature and emerging economies; many international organisations, including the UN; and actors from civil society and academia have all contributed to build a case for ‘a green economy’, or ‘green growth’, as a way to address both crises. The two terms are used often interchangeably, referring to a range of ideas also linked to low-carbon development (Barbier, 2012):<sup>(3)</sup> from the narrow frame of the ecoindustry and environmentally friendly production to a redefinition of a country’s (ROK-PCGG, 2009; World Bank and DRC, 2012) or a region’s (EC, 2010; EUCO, 2010; OECD, 2009a; UNESCAP, 2008) entire economy. Between these two extremes are policies varyingly aimed at promoting ‘low-carbon economies’ or simply ‘efficiency and productivity’ gains, which have often been found to overlap (UNEP and CSIRO, 2011). These, in turn, emphasise to varying degrees the well-rehearsed notions of dematerialisation, decoupling of resource use (UNEP, 2011a), valuing ecosystem services (Nellemann and Corcoran, 2010), or simply energy efficiency (IEA, 2012), all driven by technological innovation. The idea that

“[u]ndervaluing natural capital also has implications beyond economic inefficiency because ... it contributes to both growth and the quality of growth with respect to human welfare” (OECD, 2011a, page 21)

has been increasingly recognised by international and national organisations, since the milestone publication of the Millennium Ecosystem Assessment (MEA, 2005).

Moreover, scholars link green growth and green economies to the promising changes in the ecoindustry sector, shifting from downstream environmental protection technology to resource-saving technologies, based on innovation and competitive markets (Jänicke, 2012). They also note an increasing interest in reconsidering lifestyles beyond sustainable consumption agendas, and the need to go beyond the classic division of individualist and systemic methodologies and of the role of technological and cultural factors and innovations (Backhaus et al, 2012; WBGU, 2011).

Thus, a significant part of the policy and academic literature on ‘greening’ growth and economies combines environmental and sustainability discourses with industrial and economic policy ones, in search of ‘win–win’ solutions and virtuous cycles of progress and prosperity. Amongst international organisations, the United Nations Environment Programme (UNEP) has played a leading role in shaping and promoting the green economy as “an engine for growth”, generating jobs and eradicating poverty—defining it as “one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities” (UNEP, 2011b, page 1).

Against this background of multiple crises and emerging new ideas for economic growth, 191 UN member states gathered in Rio de Janeiro between 20 and 22 June 2012 at the UN Conference on Sustainable Development (UNCSD, hereafter ‘Rio+20’): marking the twentieth anniversary since the UN Conference on Environment and Development (UNCED, Rio, 1992), which turned ‘sustainable development’ into an internationally recognised concept

<sup>(3)</sup> See also <http://sustainabledevelopment.un.org/index.php?menu=1445>

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and normative goal, and forty years since the UN Conference on the Human Environment (Stockholm, 1972) (Linnér and Selin, 2013; UNDESA and UNDP, 2012).

During the build-up to Rio+20, a wealth of documents, data, and scholarly and advocacy-driven assessments were produced, illustrating the state of the planet, its resources, and its inhabitants, human and nonhuman. While figures and perspectives may vary, the overall message is that the ecological crisis continues to worsen, notwithstanding sectoral improvements (EEA, 2012; The Royal Society, 2012). Thus, the message of scientific leaders to policy makers and activists attending Rio+20 was that it is time for a “great transformation”, a new “narrative with an unprecedented turn in our approaches to all three dimensions of sustainable development” (IISD, 2012a, page 22). In this context the UN General Assembly called for Rio+20 to focus on two themes: a green economy in the context of sustainable development and poverty eradication, and the institutional framework for sustainable development.

### 1.2 Approach and method

This analysis is premised on the acceptance of the above-mentioned accounts of the current state of the planet and projected trends in key sustainability indicators, and on their acknowledgment of an interdependence between the ecological and economic crises. I propose to examine the relationship and influence between the double crisis and the rise of greening as part of the solution, promoted as one of only two major themes for Rio+20. The aim is to understand what defines and distinguishes the proposals contained in the new burgeoning literature and policies. I then ask what is the meaning and implication of the rising greening agenda for sustainable development as it enters the 21st century.

This research adopts a systematic qualitative analysis and comparison of textual material. Twenty-four documents are purposively selected (table 1) to: (1) represent explicitly or implicitly a search for solutions to the ecological and economic crises; (2) originate from five macrogeopolitical regions: the OECD countries, the European Union, Latin America, Africa, and the Asia-Pacific region; (3) combine the ‘official discourse’ of a wide range of international and governmental organisations with that of the business sector, think tanks, and civil society, as well as academia. I use the term ‘discourses’ to refer to assumptions, judgments, and contentions that “construct meanings and relationships, helping to define common sense and legitimate knowledge” (Dryzek, 2005, page 9). The coverage is intended to be illustrative of the range of conceptual and policy responses to the double crisis originating from a range of sources between 2008 (the peak of the financial crisis) and 2012, when Rio+20 took place, allowing me to situate the outcome of Rio+20—*The Future We Want* (UN, 2012)—in the wider context of debates on economic growth, environmental protection, and sustainability.

The focus of this qualitative analysis is on three aspects underpinning the content of the sources selected: their socioeconomic paradigm, their theoretical economic framework, and their conception of progress. These aspects reflect my choice to examine primarily the influence of the *economic* dimension of sustainable development on the environment and society, and on the distinction between strong and weak conceptions of sustainability (Ekins et al, 2003; Endl et al, 2012; Hobson, 2013; Neumayer, 2003).

The inquiry follows four steps. First, I analyse the run-up to the definition of Rio+20’s agenda, and the choice to focus on the green economy (subsection 2.1). I then work through each of the twenty-four texts, including Rio+20’s outcome document, in order to deduce categories (business as usual, greening, and all change) that can illuminate the meaning and implication of a burgeoning literature on greening (subsection 2.2). Second, in order to deepen the understanding and to validate these categories, I compare them with Dryzek’s (2005) classification of environmental discourse (subsection 2.3). Third, from this analysis three patterns emerge—illustrating the way scarcity and limits, means and ends, and reductionism

**Table 1.** List of the twenty-four selected sources responding to the double crisis.

'Almost BAU'	'Greening'	'In-between' greening and all change	'All change'
<p>European Commission and the International Institute for Labour Studies (EC and IILS, 2009) <i>Green Stimulus Measures</i>;</p> <p>Meyer-Ohlendorf et al (2009) "Economic stimulus in Europe: accelerating progress towards sustainable development?"</p> <p>[Supporting data: Bernard et al (2009) "The greenest bail-out?" <i>The Financial Times</i>;</p> <p>Hong Kong and Shanghai Bank (HSBC, 2009) <i>A Climate for Recovery: The Colour of Stimulus Goes Green.</i>]</p>	<p>European Commission (EC, 2010) <i>Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth</i>;</p> <p>European Council, Brussels (EUCO, 2010) "Conclusions";</p> <p>OECD (2009a) <i>Declaration on Green Growth</i>;</p> <p>OECD (2009b) <i>Green Growth: Overcoming the Crisis and Beyond</i>;</p> <p>OECD (2011b; 2011c) <i>Towards Green Growth</i>;</p> <p>Presidential Commission on Green Growth, Republic of Korea (ROK-PCGG, 2009) "Road to our future: green growth. National strategy";</p> <p>UN (2012) <i>The Future We Want: Resolution Adopted by the General Assembly</i>;</p> <p>United Nations Environment Programme (UNEP, 2009) <i>Global Green New Deal: Policy Brief</i>;</p> <p>UNEP (2011b) <i>Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication</i>;</p> <p>World Business Council for Sustainable Development (WBCSD, 2010) <i>Vision 2050: The New Agenda for Business.</i></p>	<p>Africa Progress Panel (APP, 2010) <i>Africa Progress Report 2010: From Agenda to Action. Turning Resources into Results for People</i>;</p> <p>Backhaus et al (2012) <i>Sustainable Lifestyles: Today's Facts and Tomorrow's Trends</i>;</p> <p>Economic Commission for Latin America (ECLAC, 2010) <i>Time for Equality: Closing Gaps, Opening Trails</i>;</p> <p>Stiglitz et al (2009) <i>Report by the Commission on the Measurement of Economic Performance and Social Progress</i>;</p> <p>United Nations Economic and Social Commission for Asian and the Pacific (UNESCAP, 2008) <i>Greening Growth in Asia and the Pacific.</i></p>	<p>Bartolini (2010) <i>Manifesto per la felicità</i> [Happiness manifesto];</p> <p>Flipo and Schneider (2008) "Proceedings of the First International Conference on Economic De-growth for Ecological Sustainability and Social equity";</p> <p>German Advisory Council on Global Change (WBGU, 2011) <i>World in Transition: A Social Contract for Sustainability</i>;</p> <p>Mujica (2012) "Discurso do Presidente do Uruguai, José Pepe Mujica na Rio+20";</p> <p>New Economics Foundation (NEF, 2009) <i>The Great Transition: A Tale of How it Turned out Right</i>;</p> <p>Pauli (2010) <i>The Blue Economy: Cultivating a New Business Model for a Time of Crisis</i>;</p> <p>Research and Degrowth (2010) "Degrowth Declaration of the Paris 2008 conference".</p>

Note: I identify only three categories in my analysis; 'in between' is not a category in itself, but represents 'shades of green' that do not allow a clear-cut allocation to either 'greening' or 'all-change' categories.

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(separation) and unity appear to be included or excluded from the discourses on and around greening economies; these illuminate further what distinguishes the three categories, and the meaning of greening in relation to sustainable development (section 3). Fourth, I then draw on these results to reflect on the implications of these patterns of inclusion and exclusion, of economisation and polarisation of discourse, and of fixing rather than shifting paradigms, for 21st-century sustainable development (section 4). In section 5 I present my overall conclusions.

## 2 The road to Rio+20: greening economies in crisis

“Economic growth is still the chief priority for most governments” (UNDESA and UNDP, 2012, page 2). Given the background of financial and economic duress, it is perhaps not surprising that ‘green growth’ and ‘green economy’ have become popular concepts across all major world regions and that Rio+20 also embraced them.

### 2.1 The road to Rio+20’s agenda

The theme of a “green economy in the context of sustainable development and poverty eradication” (page 2) was included as one of the “emerging challenges” (page 2) during the UNCSD’s first preparatory committee meeting (PrepCom I, 17–19 May 2010) (IISD, 2012b). A series of intersessional and preparatory meetings at the UN headquarters in New York, country-led initiatives, and country reports (UNDESA and UNDP, 2012) provided the inputs to the ‘zero-draft’ outcome document, prepared in December 2011. Tariq Banuri served as Director of the Division for Sustainable Development at the United Nations during the run-up to Rio+20, and his words in an interview in *Development* (Zarro, 2012) bring to life part of the reasoning behind the proposal to focus on the green economy. Asked if green economy was likely to ‘minimise’ sustainable development, Banuri’s answer validates the notion of *economisation* of sustainable development discourses (see subsection 2.3):

“I don’t see that danger ... the green economy [is placed] squarely within the context of sustainable development as a means of reconciling economic policies and economic behaviour with social and environmental needs. The focus on the economy is not bad, as this is a place where action is needed” (page 11).

Asked about the divergence of agendas between developing and developed countries and the fear that greening might slow down growth and development [a clear echo of debates in Stockholm in 1972 (see Linnér and Selin, 2013)], Banuri replies, acknowledging the notion of a *crisis-driven agenda* discussed throughout this paper: “the consensus really is not on thwarting the development agenda but on making the development agenda possible in the age of crisis. You can see this view coming from both developing and developed countries” (Zarro, 2012, page 11). Finally, asked about the idea that “we cannot achieve sustainable development until we change economic paradigm” (page 11), Banuri confirms the existence of an *emergency mindset* (see subsection 2.3): “We are in a crisis situation, and we need to come up with solutions. This is what I think. ... Our task is to look for practical solutions, not for new paradigm” (page 11).

A summary of national reports for Rio+20 (UNDESA and UNDP, 2012, page 2) highlights concerns about the “lack of clarity” on the meaning of green economy, and “apprehension about perceived risks ... including the potential of imposing conditionalities on aid, barriers to trade.” The detailed account of the process leading to Rio+20 in the Earth Negotiations Bulletin (IISD, 2012b) leaves no doubt as to the controversial nature of the UNCSD’s choice:

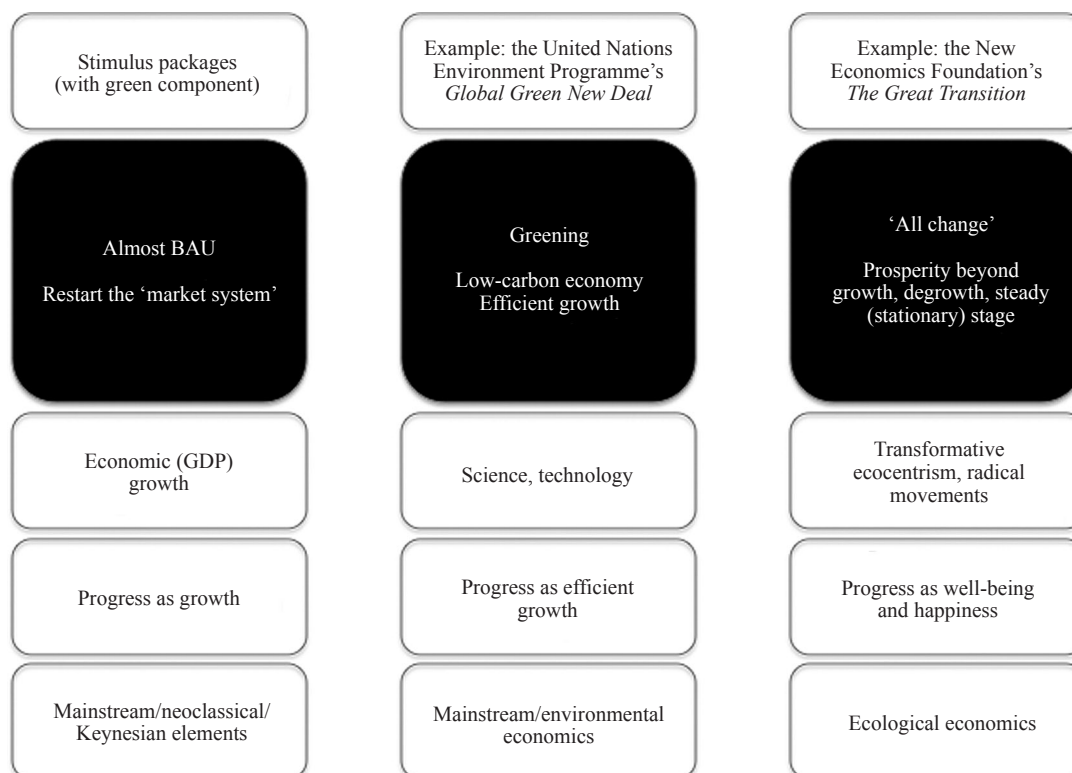
“Flagged as one of the key themes of the UNCSD, and championed by UNEP, the green economy in the context of sustainable development and poverty eradication met with fierce resistance from the G-77/China .... The position of the G-77/China led to the creation of a very defensive and highly qualified text in this section of the document” (page 21).

The controversy persisted throughout Rio+20's conference, where the diverging worldviews and priorities between developed, emerging, and developing nations appear to have witnessed little change since 1972 (Griffin, 2012): during the closing plenary, Bolivia's representative expressed "reservations regarding all references to the green economy and any interpretation that may be construed as commodification of the functions and cycles of nature" (IISD, 2012b, page 18). Thus, "[h]opes that Rio would commit the world to move towards a green economy were diluted by suspicions among some developing nations that this was another way for wealthy nations to impose a 'one-model-fits-all' approach" (Watts and Ford, 2012, unpaginated).

## 2.2 Categorising alternative policy responses to the crises

In order to discuss the green economy idea, its relationship to sustainable development, and the meaning of its adoption as part of Rio+20's agenda, I believe it is essential to view it in its wider historical (even if very recent) and economic context of multiple crises. The initial qualitative analysis of contents of the twenty-four sources in table 1, together with news about the various stimulus packages being rushed through parliaments both sides of the Atlantic (Bernard et al, 2009; EC and IILS, 2009), suggest responses to the crises can be grouped into *three* categories: (1) national stimulus packages, 'almost business as usual' (BAU); (2) proposals to green the economy, 'greening'; and (3) proposals for socioeconomic transformation, 'all change'. Each is distinguished by a primary aim, a socioeconomic paradigm, and a conception of progress (figure 1). On the basis of the categorisation in figure 1, table 2 presents elements from the texts of the twenty-four documents that are illustrative of the stated aim(s), envisaged socioeconomic paradigm, and ideas of progress that contribute to shape discourses.

The *almost BAU* category refers to the stimulus packages (also 'bail-outs', 'recovery programmes') rolled out by major economies to reduce the impact of an almost global financial meltdown, and often including so-called 'green stimulus measures' (EC and IILS, 2009;



**Figure 1.** A categorisation of policy responses to the double crisis.

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HSBC, 2009; Meyer-Ohlendorf et al, 2009). Keynesian deficit spending solutions became common throughout OECD and emerging countries [for the US example see Meltzer (2013)], illustrating the incremental change away from market fundamentalism as driver of free-market economies towards a greater substantive economic role of the state. Greening was seen as an investment opportunity within this broader change: *The Financial Times* reported that governments “committed over [US] \$512bn of the global economic stimulus outlined so far to green projects, with 22 per cent to be spent in 2009” (Bernard et al, 2009, unpaginated). The investments targeted measures to improve energy efficiency, upgrade physical infrastructure, support clean technology markets, and R&D (UNEP, 2009). G20 countries with the largest green packages in 2009 included China, South Korea, the USA, Japan, and the EU (other documents listed under greening in table 1 include details about these packages, but are listed separately as their propositions go beyond this narrow remit). The primary objective of almost BAU was to restart the globalised market economic system and to address the problem of unemployment discussed in subsection 1.1 (see table 2, column 1).<sup>(4)</sup> The green core of these responses focused on galvanising investment in the ecoindustry. The socioeconomic paradigm is that of growth, as understood within the context of mainstream, neoclassical economics, with a clear (rediscovered) emphasis in favour of Keynesian measures [see Bina and La Camera (2011) for a detailed discussion of these measures]. The conception of progress is that of progress as economic growth that will lead to a trickle down benefiting all society.

The *greening* category refers to national and international responses aimed at more comprehensive strategies for greening the economies. They are epitomised by the OECD’s (2009a) *Green Growth: Overcoming the Crisis and Beyond* and the UNEP’s (2009) *Global Green New Deal*. The primary aim here is to achieve resource-efficient, low-carbon growth. The socioeconomic paradigm has its roots in the technoscientific paradigm, and the conception of progress is one of efficient growth that will serve all society and reduce poverty (see also Ely et al, 2013; Hobson, 2013). As shown in tables 1 and 2, this category includes many shades of green, and I have therefore included certain sources under the title *in between* to reflect the gradual transition (figure 1) away from mainstream and neoclassical economics towards Polanyian-inspired propositions (Polanyi, 2001 [1944]), as a step towards (or return to) a stronger link between the economic and political spheres, beyond the rediscovered role of the state, in an attempt to reembed economies in society and culture (see also Hann and Hart, 2011). In addition, as we move to the right in figure 1, ecological economic theory—which centres around the notion of limits and provides a theoretical basis for environmental sustainability—becomes more influential, raising “crucial questions about intra and inter-generational equity, and highlight[ing] the need for a wider concept of welfare” (Bina and La Camera, 2011, page 2311). I return to the issue of worldviews and limits in section 3 (see also Meadowcroft, 2013).

This brings us to the *all-change category*, which includes a more diverse range of sources compared with the other two: NGOs, think tanks, and heterodox economists. Here there is no homogenous set of policy statements or documents. Nonetheless, I consider the *World in Transition* (WBGU, 2011) and *The Great Transition* (NEF, 2009), the “Degrowth Declaration” (Research and Degrowth, 2010), and the ‘Happiness manifesto’ (Bartolini, 2010) to be representative policy statements from a range of nonstate actors. The other three sources listed in table 1 include academic publications (Flipo and Schneider, 2008), think tanks (Pauli, 2010), and political statements (Mujica, 2012). While the all-change group is heterogeneous, three aims can be identified: prosperity beyond growth, a steady-state economy where negative externalities are reduced and eventually eliminated, and the

<sup>(4)</sup>Yet, the rising inequality of wealth distribution that followed illustrates the limited contribution of these Keynesian policies towards a just socioeconomic system (for example see Meltzer et al, 2013).

**Table 2.** Illustrative examples of aims, notions of paradigm, and progress from the twenty-four sources listed in table 1.

‘Almost BAU’	‘Greening’
<p><i>Examples of stated aim or objectives</i></p> <p>Green stimulus measures are “reactive” responses to aggregate demand shock, and aim to “stimulate aggregate demand in an economy” (EC and ILS, 2009, page 11); “Primarily designed to quickly boost consumption, to restore confidence and halt the erosion of economic activity” (Meyer-Ohlendorf et al, 2009, page 25); “Restoring economic activity, creating jobs and rechanneling economic growth in a sustainable direction” (page 25).</p>	<p>Three priorities: smart, sustainable/greener/ efficient, and inclusive growth (EC, 2010); decoupling and efficiency, knowledge and innovation (EC, 2010); “Sustainable and job-creating growth” (EUCO, 2010, page 2); productivity, innovation, new markets, investment confidence, stability (OECD, 2011); reviving the global economy (UNEP, 2009); free humanity from hunger and want (UN, 2012); we “reaffirm the need to achieve sustainable development by promoting sustained, inclusive and equitable economic growth” (page 2); define a sustainable world in 2050 (WBCSD, 2010).</p>
<p><i>Examples of descriptors for socioeconomic paradigms and dominant ideas of progress</i></p> <p>Sizeable portions were directed at environmental goals, particularly the reduction of greenhouse gas emissions (EC and ILS, 2009). Three categories of stimulus measures in OECD: (i) general government spending, wage and nonwage spending; (ii) tax cuts; and (ii) other, including labour market policies, investment in infrastructure, and product subsidies (EC and ILS, 2009); spending included “a variety of investment schemes that encourage R&amp;D and innovation in green technologies and ... infrastructure development” (page 9); “energy efficiency accounted for over two-thirds of total stimulus spending in the EU” (page 9); “Opportunity ... the crisis provides momentum for changes of unsustainable structures ... to address the deeper and structural causes of the environmental and economic crisis”, including: “Housing bubble and urban sprawl ... Financial Market Reform and Sustainable Development ... Internalising external costs” (Meyer-Ohlendorf et al, 2009, pages 27–29); None of the packages “explicitly address the conservation of natural resources” (page 4); Risk: “that stimulus funds could lock in non-sustainable technologies and structures” (page 4);</p>	<p>“Smart, sustainable and inclusive growth” (EC, 2010); Budgetary strategies must be “growth-friendly” (EUCO, 2010, page 3); market-based mechanisms: “radical innovation”, “creative destruction” (OECD, 2009); “Promoting growth and well-being in a sustainable ‘green’ way” (page 9) references to “economic, social and environmental” progress, “scientific and technological” progress, “societal and well-being” progress (OECD, 2009); “Green citizens”, “environment conscious, ‘green lifestyles’” (ROK-PCGG, 2009); fundamental greening of the economy: low-carbon, green growth, and low-carbon society (ROK-PCGG, 2009); we “consider green economy in the context of sustainable development and poverty eradication as one of the important tools available for achieving sustainable development” (UN, 2012, page 10); “Green economy” for food security, energy, and sustainable consumption (UN, 2012); reviving the global economy; efficient “allocation” of natural and financial capital (UNEP, 2009); “Green conversion” of economy and society: sustained economic growth, sustainable, and inclusive growth (UNEP, 2009); development through “greater complementarities between physical, human and natural capital” (UNEP, 2011, page 31), no “ ‘trade-off’ between economic progress and environmental sustainability” (page 45); growth and progress based on “balanced use of resources” (WBCSD, 2010).</p>



**Table 2** (continued).

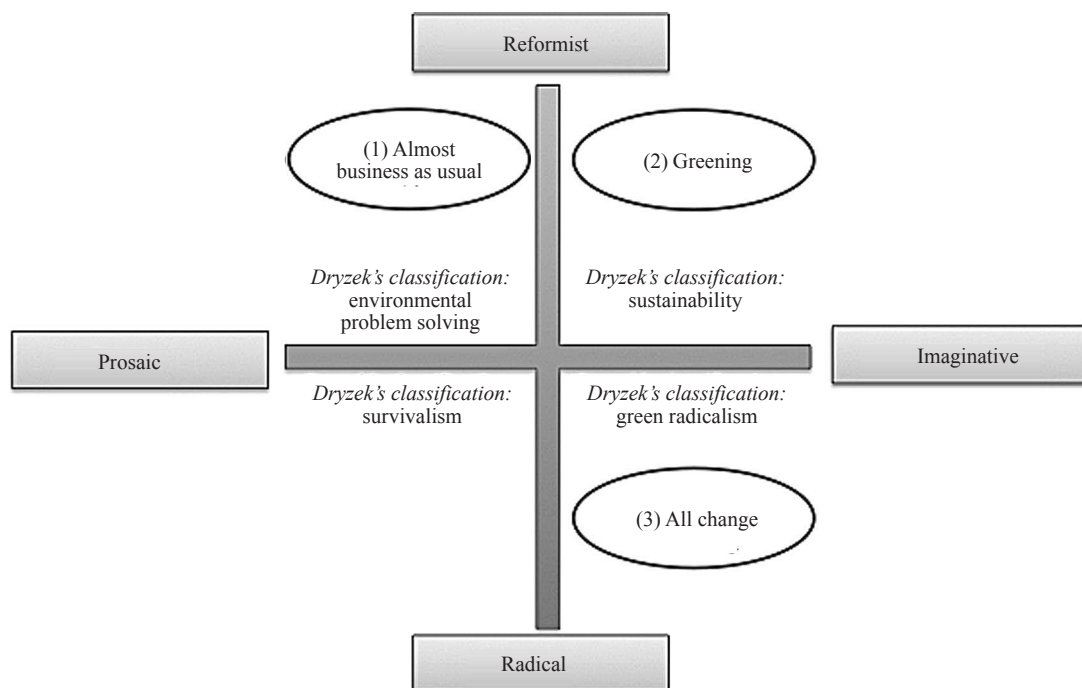
'In between' greening and all change	'All change'
<p><i>Examples of stated aim or objectives</i></p> <p>“Design potential pathways towards sustainable lifestyles” (Backhaus et al, 2012, page 10); address underdevelopment and inequality in the region, and role of the state (ECLAC, 2010); “We call for holistic and integrated approaches to sustainable development that will guide humanity to live in harmony with nature and lead to efforts to restore the health and integrity of the Earth’s ecosystem” (UN, 2012, page 8).</p>	<p>To “make people happy, and increase well-being, we need to re-organise the economic system and build a society that aims to do just that” (Bartolini, 2010); an “alternative to an economy that wrecks the environment and worsens inequality”; “Live within the limits of the natural world” (NEF, 2009, unpaginated); “To meet basic human needs and ensure a high quality of life, while reducing the ecological impact of the global economy to a sustainable level, equitably distributed between nations” (Research and Degrowth, 2010, page 524); “A new global social contract for a low-carbon and sustainable global economic system” (WBGU, 2011, page 24).</p>
<p><i>Examples of descriptors for socioeconomic paradigms and dominant ideas of progress</i></p> <p>“Sustainable economic growth” and “poverty reduction” are strongly correlated (APP, 2010); “not just ... GDP figures but also ... social benefits for all” and “global justice” (page 9); change patterns of action and consumption, and people’s everyday choices and practices, to reduce overconsumption (Backhaus et al, 2012); “Human capabilities” rather than “human capital” (ECLAC, 2010); “A new social contract” to relegitimize politics/ democracy, economic progress depends on equal rights, need to integrate in the “globalized order” (ECLAC, 2010); complementing GDP (Stiglitz et al, 2009); “Sustainability and capitalism are not contradictions” (UNESCAP, 2008, page 68) but need to improve “the ecological quality of economic growth” (page 12) to stay within “carrying capacities”; eco-efficiency; reinforce “traditional values ... more with less” (page 67); “Quality of economic growth”; a “more holistic” measure of societal progress; outcomes for human well-being questioning the role of consumption as an ‘end’ (page 11).</p>	<p>Growth is a cause and consequence of ecological and relational degradation (Bartolini, 2010); beyond “growth as a sign of progress”, towards a “change of values” and a redefinition of the relationship between markets, values, and relations (Bartolini, 2010); “When we fight for the environment, the first element of the environment is human happiness” (Mujica, 2012); “Stop the growth in output and consumption”; “sharing resources”; “non-market activities”; value “unpaid ... poorly paid labour” (NEF, 2009, unpaginated); beyond GDP and the need for a “great revaluing”, “a socially defined concept of value is placed at the centre of decision-making and progress towards it is measured” (unpaginated); “Reskilling” is more important than science and technology (NEF, 2009); “A paradigm shift from the general and unlimited pursuit of economic growth to a concept of ‘right-sizing’ the global and national economies ... a voluntary transition towards a just, participatory, and ecologically sustainable society” (Research and Degrowth, 2010, pages 523–524); “paradigm shift from fossil to post-fossil society” (WBGU, 2011, page 31).</p>

Note: Details of each source are in table 1 and in the references; entries are listed by source, in alphabetical order.

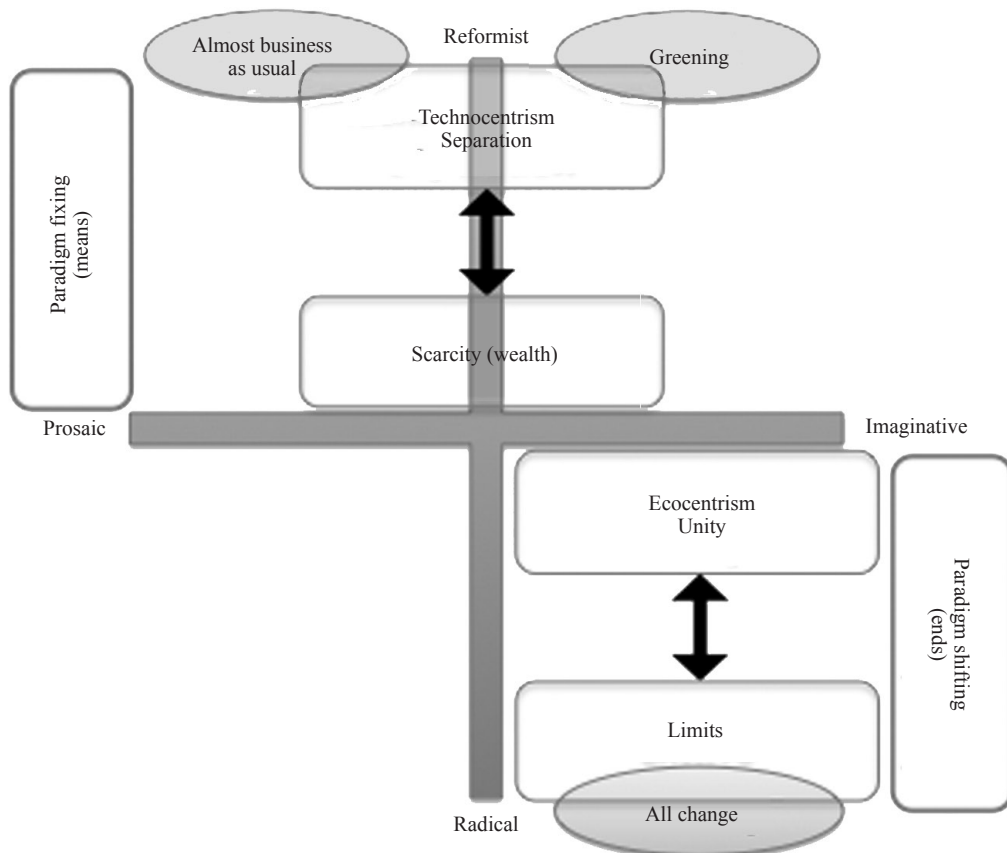
building of autonomous and thrifty convivial societies emphasising well-being. The *degrowth* movement (Flipo and Schneider, 2008; Kallis et al, 2012; Latouche, 2010; Research and Degrowth, 2010; Spangenberg, 2010) is part of this category. All these alternative sources beyond the official international discourse tend to acknowledge the implications of Easterlin and Jevon's paradoxes (regarding GDP/happiness and efficiency gains). The socioeconomic paradigm is 'transformative', in fundamental ways that remind us of the work of Polanyi (2001 [1944]) and Williams (2001 [1961]) and draw from the natural sciences, social sciences, and humanities, in contrast to the economics-centred language of previous categories. Polanyi-inspired elements of the degrowth movement question the centrality of the economy itself (independently of whether it could be sustainable or steady) and seek to end the domination of society by the economy. Thus, progress, in the all-change category, is framed primarily in terms of human well-being and happiness (see table 2, columns 3 and 4).

### 2.3 Green responses and Dryzek's discourse classifications: economisation and separation

In order to extend the analysis and interpretation of table 1's sources and the initial categorisation proposed in figure 1, I turn to explore the relationship between these categories and Dryzek's (2005) classification of environmental politics discourses. Dryzek identifies two key dimensions (the axes in figures 2 and 3) affecting human–nature interaction: the reformist-to-radical changes away from the conditions created by dominant industrialism, and the prosaic-to-imaginative alternatives to the dominant political–economic and social–industrial aspects. Reformist–prosaic changes represent a conservative, gradual, and contained approach to change; and radical–imaginative ones take on a progressive, rapid, and far-reaching approach. Dryzek's (2005, page 15) 'problem-solving' classification of reformist–prosaic policies is close to the content of responses in the BAU category (see figure 2). His 'sustainability' and 'green radicalism' typologies of reformist–imaginative and imaginative–radical changes fit with the greening and all-change categories. The gradual transition between these two latter categories along Dryzek's 'axes' helps locate—and explain—the sources listed in the in-between column in table 1.



**Figure 2.** The relevance of Dryzek's (2005) environmental discourse classifications to the responses reviewed.



**Figure 3.** Relating environmental discourse classifications to the three patterns observed in ‘almost BAU’, ‘greening’, and ‘all change’.

Where does Rio+20 fit in this framework? Its agenda was designed at the height of the global financial crisis, but how does this choice relate to the global environmental and sustainability challenges, and what are its implications for sustainable development twenty years after the UNCED (1992)?

Although green economy responses vary significantly (Bina and La Camera, 2011; Jänicke, 2012), the greening category described above combines elements of ecological modernisation and transition management (Mol et al, 2009), but falls short of embracing their more radical–imaginative dimensions (figure 2, bottom right), which are picked up by the in-between and the heterogeneous all-change groups. This is consistent with the literature discussing the concept of sustainable development since its embracing and legitimisation at the 1992 Rio Summit (UNCED, 1992). The concept that arose from Rio is closer to the weak, rather than the strong, paradigm (Ekins et al, 2003; Endl et al, 2012; Hobson, 2013; Neumayer, 2003). Strategies for the greening of economies, as advocated at Rio+20 (UN, 2012), are consistent with weak conceptions of sustainable development. Their substantive novelty is questioned, given clear links to notions of ecological modernisation and given significant overlaps with texts such as the World Bank’s 1992 “World development report” already referring to: the need to change production, without questioning overall levels of consumption, “[t]he key to growing sustainability is not to produce less but to produce differently” (chapter 1); the need for more efficient allocation of environmental resources, “[t]he true value of many environmental goods and services is not paid for by those who use them” (chapter 1); and the need for informed policy, referring to assessment of “uncertainty about the effect of economic activity on the environment” (chapter 1).

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The question is whether today's greening proposals can be an opportunity to shift towards strong sustainable development into the 21st century, or whether they will further consolidate its weak interpretation, or even allow it to slide quietly towards a reformist–prosaic almost BAU. The greening and almost BAU responses do not address the hard choices called for by many in the scientific and civil society arenas. A report by The Royal Society (2012, page 8), issued weeks before Rio+20, argued that the UN process presented “opportunities to reframe the relationship between people and the planet”, while Nobel laureates and ‘scientific leaders’ at Rio called for: a ‘great transformation’ of how we approach the dimensions of sustainable development (IISD, 2012b, page 51). This need for an upheaval of the current socioeconomic system was understood also amongst politicians: “[a]s one Minister put it, ‘we need not only to shift gears, but also to change lanes’” (OECD, 2012, page 4). However, the outcome at Rio+20 falls short of such expectations (Barbier, 2012; Watts and Ford, 2012). Governments, scholars, and civil society pulled in different directions, depending on the objectives, paradigms, conceptions of progress (worldviews), and economic theories that frame their solutions (figure 1). There is also a deeper, subtler tension between the perceived need to find solutions ‘urgently’ (OECD, 2009b), epitomised by the interview with Tariq Banuri (Zarro, 2012), and the need to resist what Žižek has defined ‘emergency ideology’ (see Goodman and Žižek, 2008), epitomised by the propositions of civil society (NEF, 2009), non-OECD leaders (Mujica, 2012), and unorthodox economists (Bartolini, 2010). Short-termism has been a constant enemy of sustainable paths, and the latest financial crisis has exacerbated its impact in a scramble for GDP growth.

The language and contents of the documents reviewed suggest that there is an increasing economisation of the framing of problems and solutions, as one moves anticlockwise along figure 2, from radical–imaginative (‘all change’) all the way to reformist–prosaic (almost BAU). I would argue that the notion of opportunity out of a crisis has been embraced, primarily, by seeking to create investment and job opportunities out of downstream environmental protection technology and resource-saving technologies. The objectives, priorities, and solutions to the crises in the greening category are understood through the lens of mainstream economics, and elements of environmental economics (notably, ecosystem services valuation). The same can be said for the green element of almost BAU and its stimulus packages (EC and ILS, 2009; Meyer-Ohlendorf et al, 2009).

There is, of course, no fine line between the three categories, and the contents analysis shows the greening category being pulled in opposite directions. Some elements, including the OECD's (2011b) version of green growth and economy or the more technologically oriented interpretations of ecological modernisation, lean towards almost BAU; others, including elements of the UN reports for Latin America and Asia-Pacific and report on Africa (APP, 2010; ECLAC, 2010; UNESCAP, 2008), could lie across the boundary with all change (in between, table 1). However, overall, there is an almost neat separation between sources and the actors they represent: government elites and the finance sector (almost BAU), international agencies, multinationals, and a few governments (greening and some ‘in between’), and civil society representatives, including disciplinary outliers (in between and all change).

Having carefully avoided reference to planetary boundaries or the need to emphasise the Earth's limits, Rio+20's declaration (UN, 2012) may not live up to the expectations of that part of the scientific community and civil society gathered in Rio in June 2012 hoping for a paradigm shift. But can greening move closer to these expectations? Contents analysis of the related documents suggests that the greening phenomenon is about efficient, technologically driven, sustained growth, and paradigm fixing, rather than shifting. A very

significant part of the discourse on the environmental dimension, or problem, focuses on the climate–energy nexus and hence on low-carbon solutions (technological and financial sustainability). References to poverty alleviation and well-being, as well as beyond GDP, are common throughout most sources reviewed; and despite a weak commitment, one of the most promising results of Rio+20 is the recognition of the “need for broader measures of progress to complement gross domestic product” (UN, 2012, §56). This beyond-GDP theme epitomises the potential for dialogue between greening and all-change propositions.

However, the focus of the greening documents falls heavily on market mechanisms, investments in innovation and (green) technology, and green consumption and production. In the words of the Rio+20 resolution,

“we consider green economy ... as one of the important tools available for achieving sustainable development ... it should contribute to eradicating poverty as well as sustained economic growth, enhancing social inclusion, improving human welfare and creating opportunities for employment and decent work for all, while maintaining the healthy functioning of the Earth’s ecosystems” (§56).

Here is the contention and legitimisation of Rio+20’s choice of agenda: greening is a means to a sustainable development. Considering the significant, multidisciplinary work raising very fundamental questions about the link between growth, inclusiveness, and justice [Jasanoff, 2002; Morrissey, 2012; OECD, 2008; 2011a; Sandel, 2012; Wilkinson and Pickett, 2009; see also *The Economist* (2012) for an overview], this statement is a testament to the tensions of multilateralism (IISD, 2012b) and to the power of the financial crisis in stirring the debate and language deemed acceptable. It also illustrates the still limited ability of the environmental movement to address basic flaws in the growth imperative.

The trend promoted by greening is one of greater focus on economic and social objectives, which the environment is called upon to serve through efficient solutions (table 2) (see also Ely et al, 2013; Hobson, 2013). A more comprehensive and interdisciplinary notion of paradigm shift is offered by all-change aims and worldviews.

### 3 The meaning of three interwoven patterns

From this categorisation and comparative analysis of the textual data, three patterns emerge to illustrate the way (1) scarcity and limits, (2) means and ends, and (3) reductionism (separation) and unity are included or excluded from the discourses on and around greening economies. Their analysis thus further illuminates what distinguishes the three categories, and the meaning of greening in relation to sustainable development.

#### 3.1 Scarcity and limits

All documents reviewed refer to the perceived problem of scarcity, explicitly (for example, UNEP, 2011b) or implicitly, when referring to food or energy crises and security issues (for example, UN, 2012). I argue that the framing of problems and solutions is influenced by the economic notion of scarcity and the specific worldviews it represents, and excludes, notably, those related to ‘limits’, recently popularised (reframed?) in terms of planetary boundaries and safe operating space [see section 1 and Meadowcroft (2013)].

The reason why scarcity figures so prominently in most green economy documents lies in the core principles of the economics *discipline*: economics is all about scarcity, and the choices it requires agents to make as a result. In his influential essay, Robbins (1935 [1932]) defined economics as

“the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses ... wealth is not wealth because of its substantial properties. It is wealth because it is scarce” (pages 16 and 47).

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The process of economisation of the sustainable development discourse, noted above, is therefore more understandable when considered through the lens of scarcity: the essence of wealth itself.<sup>(5)</sup>

Superficially, the dimension of scarcity in modern economic theory appears to support the notion of a finite planet in sustainability theory. This is not necessarily the case. While limits may lead to a decline and eventually a stabilisation of economies towards a steady state (Daly, 1980), scarcity in mainstream economics is a driver of innovation, technological change, investment, and, hence, GDP growth. Scarcity is a relative concept depending on demand and consumption (policy and politics) and on the efficiency of a unit of means (for example, energy) for a certain end. Indeed, reference to scarcity in greening sources all but questions the dominant growth paradigm, except for the forceful demand for greater efficiency in the use of resources—deemed scarce. Appeals to constraining demand and consumption are much less frequent, as the primary aim is economic growth, albeit green, and the socioeconomic paradigm is still that of consumption economies (World Bank and DRC, 2012). When discussed, demand reduction is framed in terms of efficient consumption (notably, ROK-PCGG, 2009). Even the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP, 2008, pages 8–9) report frames its solutions in terms of “quality” and “eco-efficiency of economic growth”, while referring explicitly to ‘limits’ linked to low per capita access to resources and “to the capacity of economic growth processes and social change to ensure that natural resources are not depleted faster than they can be regenerated.”

The levels of scarcity are directly proportional to the success of growth. If scarcity is a problem, growth becomes a problem, and greening its solution of choice, promoting a switch to sustained, efficient, and inclusive growth. A solution was upheld in the international discourse, including Rio+20’s *The Future We Want* (UN, 2012, §4): “[w]e ... reaffirm the need to achieve sustainable development by promoting sustained, inclusive and equitable economic growth.” This entails growth of GDP, of delivery of social services, and of the extraction and use of environmental resources (for food and industrial production).

Understanding the challenges posed by the crises in terms of scarcity, rather than limits, is unlikely to ensure respect for planetary boundaries. Instead, if sustained growth is to be achieved, scarcity remains an inevitable attribute of ‘the future we want’, and justifies seeking solutions through market efficiency and the innovation–technology nexus, falling neatly within Dryzek’s (2005) reformist dimension (figures 2–3). Timmerman (2012) relates scarcity to the engines of modernity:

“[m]odern economics is predicated on an assumption of scarcity ... a self-fulfilling prophecy, intimately connected to elemental assumptions concerning freedom, breaking limits, and the drive towards more—the engines of modernity” (unpaginated).

This stands at the opposite end of an imaginary worldview spectrum with the New Economics Foundation’s report or the work of economists like Bartolini (table 2), who seek to redefine the relationship between markets, values, and relations in order to escape the need for endless GDP growth, while promoting prosperity and well-being.

But scarcity is a double-edged sword for the dominant paradigm. If it drives the mechanisms of growth, it is also its chief obstacle. The need to green growth should not be read solely as an acknowledgment of, and response to, the ecological crisis linked to industrial growth. Its link to a more *efficient* use of resources provides a lifeline to the dominant paradigm of growth, thus ensuring the continued availability of cheap resources upon which the model relies post-WWII (Dobbs et al, 2012).

<sup>(5)</sup>For a nontechnical discussion see Heilbroner (2008); for an alternative perspective conceptualising wealth as energy see Soddy (1921).

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In essence, the message from the greening discourse follows a clear logic: green growth is a priority, which locks us into a pattern of increasing scarcity (albeit less dramatic than in mainstream growth) that must be mitigated through market efficiency [for an illustration see ISIS and Mcrit (2010)]. Thus, while all-change proposals engage with limits and seek to radically change the model [see Dryzek's (2005) radical–imaginative classification], greening solutions try to fix it through markets, efficiency, and technology (figure 3). Thus, consumption is not questioned by greening: rather, its continuation into the 21st century is made more probable.

The ideas and worldviews included in the all-change literature reveal a further link: that between limits and scale, including economies of scale (see Lawhon and Patel, 2013). Pauli's (2010, pages xxix and 69) *Blue Economy* report for the Club of Rome (which seeks to overcome the negative message of 'limits' in the 1972 report) proposes a model that uses materials and labour in ways that do not entail the "callous ... search for ever lower marginal costs" essential to economies of scale. The redefinition of scarcity is also proposed by Timmerman (2012) as "a more powerful way of thinking about our situation [that] requires a re-introduction of the belief that the world is fundamentally abundant" (unpaginated). This idea offers a powerful reimagining of what is possible and desirable, breaking the established use of the word 'possible' to define the endless potential of technology, and 'impossible' to define any substantial attempt at abandoning the dominant economic paradigm. All-change sources seek alternatives to economies of scale, and often link this to the local–global tension. They question and challenge neoclassical concepts of scarcity and wealth.

Thus, fundamentally different notions of scarcity (wealth) and limits divide the discourses in figures 1–3. Earth's finiteness can coexist with a worldview of abundance if it embraces proportionality, and therefore attention to scale, leading to the all-change propositions questioning the purpose of development and progress. These ideas were central to notable contributions from Soddy (1921), Polanyi (2001 [1944]), Illich (1996), Schumacher (1974 [1973]), and Daly (1980)—all uncannily relevant to this day. Building on earlier insight, today's heterodox economists—who embrace limits and explore alternative socioeconomic systems beyond current market systems—argue in favour of less growth for a variety of reasons: to increase well-being in rich countries (Bartolini, 2010), to protect the environmental base globally (Flipo and Schneider, 2008; Latouche, 2010), and to increase justice (NEF, 2009; Smith and Max-Neef, 2011).

### 3.2 Means and ends or fixing and shifting

The move from prosaic to imaginative and from reformist to radical discourses implies a fundamental questioning of the ends, as well as the means, of the dominant socioeconomic paradigm: the second pattern of inclusions and exclusions identifiable in the twenty-four sources reviewed. Greening policies strike an uneasy balance between fixing and shifting away from the dominant paradigm (figure 3). Fixing the paradigm is to be achieved through incremental changes of the means that will lead us towards a more sustainable (less-wasteful) consumption economy. It avoids questioning the 'end', the linear concepts of progress as material and upward growth, beyond rhetorical opening statements. The green economy discourse does not set out to change the socioeconomic paradigm, and its end, but it makes strong claims in terms of the need to fix what is wrong about it, including the all-important market mechanisms that drive it (table 2).

Its nature as a means (a 'tool') to an end, is confirmed in Rio+20 (UN, 2012, §56): "we consider green economy ... as one of the important tools available for achieving sustainable development." No doubt, as a means or tool, green—and thus *efficient*—growth is essential, even urgent (EEA, 2012), although too little is being said about the dangers of increasing levels of complexity intrinsically related to many technological innovations aimed at raising

efficiency and productivity. Homer-Dixon (2006) illustrates those dangers and emphasises degrees of resilience, which are incompatible with the extreme levels of efficiency needed to sustain growth “while facilitating ecosystem conservation, regeneration and restoration and resilience” (UN, 2012, §4). Similarly, rebound effects continue to be largely ignored in greening discourses (Bina and La Camera, 2011).

Greening may be essential; but in addition to possible negative feedbacks, it is not sufficient when confronted with the ecological challenges presented at Rio+20. The existence of challenges that could be putting at risk planetary boundaries suggest that, twenty years after Rio’s UNCED, sustainable development remains a mere project, rather than a reality. Reality is still dominated by concepts of development and growth, largely free of adjectives such as ‘sustainable’, ‘inclusive’, or ‘green’. Greening discourses tend to exclude arguments and evidence calling into question the underlying causes of the double crisis, relating to the ends in themselves. Growth of GDP, which has been attained primarily through consumption economies since WWII, and financialisation of the global markets since the 1980s (Foster and Magdoff, 2009), was never intended as an end in itself. This argument was thoroughly debated in the *Report by the Commission on the Measurement of Economic Performance and Social Progress* (Stiglitz et al, 2009), and lies at the heart of many contributions within the all-change category. Given the abundance of work in this field, it is disappointing that the Rio+20 Declaration limits itself to “recognize the need for broader measures of progress to complement gross domestic product” and to request the UN Statistical Commission “to launch a programme of work in this area, building on existing initiatives” (UN, 2012, §38).

In essence, the two groups are divided by their different interpretation of what caused the crisis. In the all-change category our current predicament derives from a crisis of ends, not of means (though these too need changing). A crisis where the morality of dominant market economy systems is being questioned, where the responsibility of human beings towards future generations and other sentient beings still awaits to be addressed, and where the single indicator of GDP, though woefully inadequate to represent the present—let alone the future—we want, remains nonetheless at the heart of (mainly short-term) political debates across the globe. The greening discourse does not deny this explicitly, but focuses predominantly on the fine-tuning of means.

In summary, we see two somewhat polarised discourses and underlying worldviews, represented in figure 2 by the top-left and bottom-right quadrants. On the one hand is the persistence of scarcity as a core notion, favouring technocentrism: this is the realm of paradigm fixing, and the focus on developing new means for an undisputed end. On the other, we have the inclusion of limits (and scale) as a core notion and driver of the debate on alternative ends. Here, ecocentrism and alternative socioeconomic system—many inspired by the work of Polanyi—are common influences, appealing to the need for a redefinition of the end itself. In part, greening tries to bridge two more extreme positions (figure 3). This divide is all but new to environmental policy and sustainability theory. It arises from divergent positioning vis-à-vis decades of neoliberal ascendancy (Dale, 2012), but also from different worldviews shaping the relationship between humankind and nature: the focus of the third observed pattern.

### 3.3 Reductionism (separation) and unity

The twenty-four sources reviewed here show that the intellectual battleground between divergent ideological interpretations of the environmental question remains unpacified. On one side is the ecocentric mode assuming a natural order that humankind has the power to disturb, potentially leading to the destruction of the biosphere; on the other is the technocentric mode that focuses on rational, value-free scientific managerial techniques to shape the natural environment and humankind’s destiny (O’Riordan, 1983). The roots of these interpretations



are to be found in ancient to modern narratives of the relationship, including connection and dependence, between humans and nature. Environmental ethics helps illuminate the divide between technocentric and ecocentric modes of relationship in terms of separation and unity: suggesting that the first corresponds to ideas of power relations, domination, and exploitation of nature by humans ('separation'); and the second to notions of respect, humility, and caution in our relationship with nature ('unity') (Collingwood, 1945; Jamieson, 2001). This in turn relates to Western societies' persistent dualism and binary language, derived from the Renaissance and Enlightenment, in terms of how they value nature and people, ecosystems and resources, emotions and rationality, Earth and Heaven, women and men (Rolston, 1994; Shiva, 2005). O'Riordan's (1983) technocentric and ecocentric modes echo this divide in terms of utility and intrinsic value of nature, respectively—a differentiation that lies at the heart of the tension between the economic theories in figure 1: neoclassical, environmental, and ecological *economics* (see also Callicott, 1985; Soper, 2010).

Greening can only partly bridge these persistent separations. A step further in the domain of imaginative–radical discourses is required (ie, a shift to the right along the axis 'prosaic to imaginative', figure 3). The worldviews underpinning conceptions of progress in the greening and all-change categories remain divided along the fault lines identified in Jasanoff's (2002, pages 256–258) analysis of the 'invention of progress': the optimism of natural scientists and pessimism of social theorists and historians. Recent essays exemplify the persistence of this separation (Burger et al, 2012; Matthews and Boltz, 2012).<sup>(6)</sup>

The ideas of development and progress linked to mainstream economics are driven by science and technology, which subscribe to notions of separation and control of nature. Polanyi (2001 [1944]) considered the control, indeed the subjugation, of humans and nature to the laws of the market, as the origin of a civilisational breakdown. Instead, the modern view is that markets, development, and progress are to deliver 'human betterment', unproblematically (Jasanoff, 2002, page 257). Market mechanisms and technological innovation drive the wave of optimism and of win–win claims in the greening discourse: "if the challenges [of resource scarcity] are on a different scale from those of the past, so too is the potential technological know-how to address them" (Dobbs et al, 2012, page 3). Thus, fracking technology can be understood as "an economic bonanza" (Herman, 2012, unpaginated).

The language of unity and holism remains relegated to a 'distant South'—such as the intervention by Uruguay's President (Mujica, 2012), or the call by Venezuela's Vice Minister for Foreign Affairs "for a new development paradigm, ethic and morality that is humanist and restores balance between man and Mother Earth" (IISD, 2012b, page 31). Or to a recognition that awaits substantiation: "[w]e recognize that planet Earth and its ecosystems are our home and that 'Mother Earth' is a common expression in a number of countries", and the "rights of nature in the context of the promotion of sustainable development" (UN, 2012, §210).

This contentious nature of the human–nature relationship is a key to the reductionist story of growth that continues to limit the realisation of sustainable development in practice, and that derives its origins back to Baconian–Cartesian reductionism. Reflecting on the range of scientific discovery between the 17th and the end of the 19th centuries, Williams (2001 [1961], page 163) notes that "its importance lies only in part in its transformation of the techniques of production and communication; indeed [it] lies equally in its transformation of man's view of himself and of his world." This is a transformation that underpins

<sup>(6)</sup> Even though, as noted by one of the reviewers of this paper, there are

"natural scientists who are pessimists (ie, climate change, peak oil) and social theorists who believe more in technology. Of course, there are also optimist natural scientists (biotechnology) and pessimist social scientists (anthropologists). In other words, this distinction is problematic—I guess there were and are always both pessimists and optimists on both sides."

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Polanyi's (2001 [1944]) critique of a market economy where labour and land (or man and nature) became factors of production, and societies are defined by the markets and by economic motives. In his work, Polanyi (in Dale, 2012) identified two main causes for the abrupt transition to a market economy in the 19th century: technology and economies of scale, and "the expectation that human beings behave in such a way as to achieve maximum money gains" (page 7), the *homo economicus*. Thus, not surprisingly, the way the economic discipline conceives of human–nature relationships, and its very notion of human being—the *homo economicus*—are subject of renewed inquiry (Bartolini, 2010; Bina and Vaz, 2011; Ingebrigtsen and Jakobsen, 2009). These are themes central to interdisciplinary debates on the discipline of economics—the originator of ideas of growth (Hann and Hart, 2011; Smith and Max-Neef, 2011), as scholars question the premise whereby *homo economicus* ignores (at best) the aesthetic, ethical, spiritual, and psychological bond with nature. They are also central to debates on the teaching of sustainable development (Hansson, 2012) or of its integration into teaching (Sterling, 2004). Obstacles to interdisciplinarity are a measure of the challenge implied in shifting paradigms:

"we need to ... apply a mix of academic rigour, courage and humility to bring new and interdisciplinary insights into the emerging era ... we need to have the audacity to think differently and conceive of alternative futures" (Anderson and Bows, 2012, page 640).

This in-depth analysis of the three patterns emerging from the categorisation and comparative analysis of the textual data has further illuminated the factors distinguishing the different discourses—on, around, and beyond—the greening of economies. I now turn to examine the implications of these patterns and differences for the future of sustainable development.

#### **4 Implications for 21st-century sustainable development**

I have shown that important ideas have been added to the evolving discourse on sustainable development since the 1980s, and especially since 1992, characterised by new emphases (for example, on ecosystem services, ecoindustry, well-being, and beyond GDP), and new language (notably, the low-carbon debates). Nevertheless, these additions still amount to weak interpretations of sustainable development. In this context the tensions and shortcomings that characterise the three, closely related, *patterns* (in section 3) persist, largely unresolved, and help explain the implications of a focus on the green economy for sustainable development.

I have argued that one important effect of greening has been a significant economisation of the sustainable development discourse (section 2). Underlying the financial, and to a lesser extent the climate change, crises that have dominated traditional media headlines lies a multiplicity of interconnected crises ranging from democracy and values to energy and food security. However, this interdependent set of crises has been synthesised within a single issue—the economy (and its woes)—and this has reflected on the agenda setting leading up to Rio+20. The deeply systemic relationships between the crises are sacrificed in favour of a simplified problem definition, and solution. The environmental crisis is then framed as an opportunity for low-carbon objectives, for greening consumption, and for investment in ecotechnology and innovation, or win–win solutions (subsections 1.1 and 2.2).

In a green economy scarcity becomes an attribute of 'the future we want', acting paradoxically as a driver and a constraint of (GDP) growth, as it locks systems into economies of scale and globalisation. Resource efficient growth is likely to fall short of the global environmental and social challenges discussed at Rio+20, and the UN's claims that the green economy is a tool for sustainability must seek validation within the constraints of a weak interpretation of the latter. But this is a repetition of an age-old debate between technological optimism and ecocentric concerns. Still, the choice to focus on greening at Rio+20 implies the systematic overlap of industrial/economic policy with the environmental problematique,

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itself justified by the emphasis on scarcity. The belief is that solutions to the current crises are not to be sought in the realm of ends, but rather in the fine-tuning of means, including technical solutions, valuing ecological services, and pursuing a better balance between market fundamentalism and Keynesian solutions.

Much like the apparent impregnability of the optimistic development discourse in the face of the many arguments raised by historians and critical theorists (see Jasanoff, 2002), mainstream economic theory persists essentially unchanged in some of its fundamental reductionist assumptions about who we are; the role of, and relationship between, nature and society; and how the economy works (in particular, ‘free’ market economies) (Bina and La Camera, 2011; Hodgson, 1993; Smith and Max-Neef, 2011). In other words, it upholds a reductionist worldview of all three pillars of sustainable development: (1) society is made up of human beings that are consumers, utility maximisers, conceived as individuals detached from a social or natural context; (2) nature is about resources which have a key input function into the economy; and (3) the economy and society are understood as consumption economies and societies, emphasising material well-being at the expense of the immaterial. Greening proposals rely on mainstream and environmental economics, offering limited resistance to these perspectives.

The dominant growth paradigm remains largely unchallenged. Its roots lie in a nonrelationship between humans and nature, and it subscribes to the notion of economies disembedded from the natural–sociopolitical fabric. Indeed, it is this loss of connection, argues Kothari (1994), that has led humanity on a path of growth against nature. Green economy propositions attempt to reframe core assumptions on human–nature relationships through the inclusion of nature’s noninstrumental values and proposing new production strategies that would work *with* nature as opposed to *against* it (UNEP, 2011b; UNESCAP, 2008; WBCSD, 2010); and by questioning lifestyles and exploring beyond-GDP options (Backhaus et al, 2012; ROK-PCGG, 2009; Stiglitz et al, 2009). However, this is not sufficient to overcome the fundamental separation and reductionism discussed here, nor its implications for sustainability. Rio+20 (UN, 2012) reconfirmed the weak conception of sustainable development in terms of the ‘three dimensions’ (pillars) model, which challenges neither the reductionist views listed above nor the legitimacy, desirability, or indeed the possibility of economic growth as its aim, nor—crucially—the economisation of the concept of progress as its driver.

Thus, it is the in-between and all-change categories, and the shift towards the imaginative–radical quadrant inspired by Dryzek (2005) (figure 3), that must seek to address the core of the above critiques: (1) the economisation of sustainable development, linked to the scarcity and limits pattern; (2) the dualistic worldviews leading to fixing (not shifting) the growth paradigm, linked to the pattern of means and ends; and (3) the reductionist perspective of mainstream economics that frames our (non)relationship with nature, linked to the pattern of reductionism (separation) and unity. As discussed in previous sections, these critiques have been developing since the late 1960s [or earlier—notably, Polanyi (2001 [1944]) and Soddy (1921)], and, indeed, the documents and responses in the all-change category define problems and solutions by drawing from a range of sources and disciplines, including these works. Their interdisciplinary efforts seek to reinvent economics ‘as if people’ and nature ‘mattered’ [echoing the subtitle of Schumacher’s (1974 [1973]) book, rejecting the multiple reductionist readings of the three pillars of sustainability (subsection 3.3), and recalling Kothari’s (1984, page 237) idea that: “[t]o shift to sustainable development is primarily an ethical shift. It is not a technological fix, nor a matter of new financial investment. It is a shift in values.” In ‘all change’ Backhaus and colleagues (2012) envisage a transition from “consumption- to value-based societies” (page 15) as critical for sustainable development in 2050, while Bartolini (2010) states the elusive obvious that if the aim is to increase people’s well-being inseparable

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from a healthy environment, we must reorganise the economic system and build a society “that aims to do just that” (page 162).

The three-pillars model (which subscribes to the weak interpretations of sustainable development) emphasises scarcity, and thus economisation, and focuses on means and on a reductionist view of human–nature relationship and interdependence that allows for substitution of natural and manmade ‘capitals’. If conceived through the interpretative lens of the all-change category, I suggest the model will require: (1) changes in the nature of the three dimensions—replacing them with human beings, society, and the planet/nature, while the economy pillar becomes the underlying sum of socioeconomic market and nonmarket activities, and of the links that support (or are a means to) the relationship and interdependence between these new pillars; and (2) changes in the concept of progress driving it—from *development* and *economic* progress to *human* progress. Placing the latter at the centre of three interlocking dimensions—planet (and nature), humans, and society—and redefining the role of the consumption-driven economy might help change the way we define problems and solutions in this century.

## 5 Conclusion

The green economy may have been a pragmatic choice around which to try and build consensus in the occasion of Rio+20, and to promote rapid action at a time of crisis. But it did not live up to this hope, nor to the rhetoric whereby crises create an opportunity for change: “[w]e made progress but we missed the historical opportunity” [the Swiss envoy’s concluding remarks at Rio+20 (IISD, 2012b, page 19)]. The UNCSD outcome document is generally considered modest, emblematic of Swyngedouw’s (2010, page 228) critique of global megasummits, undertaking “action such that nothing really has to change”, and failing to “create real possibilities for constructing different socio-environmental futures”. And yet, given the current state of the planet, illustrated with renewed urgency by scientists in the build-up to Rio+20, and the acknowledgment of the interdependence between the ecological and economic crises, we need nothing less than a different concept of socioeconomic progress, based on a new understanding of the relationship between humans and nature. The hope is that the limitations of greening discourses will contribute to reinvigorate the discussion around sustainable development models for the 21st century.

In this paper I have examined three patterns—scarcity and limits, means and ends, reductionism (separation) and unity—that help explain the meaning and implications of greening for sustainable development, revealing an economisation and polarisation of discourses, the persisting weak interpretation of sustainable development, and a tension between the fixing or shifting of dominant socioeconomic paradigms that underpin its conceptualisation. The articulation of each pattern also defines the seeds for a new perspective on sustainable development: seeds that could grow to create the space for a new paradigm aimed at human progress.

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