



NETGREEN

Network for Green Economy Indicators

Report on definitions of the Green Economy and progress towards it

Deliverable 2.1



Funded by the European Union



SEVENTH FRAMEWORK
PROGRAMME

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Special thanks to:

The interviewees and workshop participants who gave their time to contribute to this research.

Project coordination and editing provided by Ecologic Institute.

Manuscript completed in May, 2014

Document title	Report on definitions of the Green Economy and progress towards it: Deliverable 2.1
Work Package	WP2
Document Type	Deliverable
Date	9 May 2014
Document Status	Final version

ACKNOWLEDGEMENT & DISCLAIMER

The research leading to these results has received funding from the European Union FP7 ENV.2013.6.5-1: Network for green growth indicators under the grant agreement n° 308680.

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Introduction

This paper has been written as a contribution to the FP7 project, Network for Green Growth Indicators (NETGREEN). The aim of the project is to accelerate the transition to a green economy by creating an open-access, searchable, web-based database that enables those working in the field to quickly identify and compare indicators that can be used to measure progress towards their vision of a green economy. The project will bring together and structure the existing fragmented body of work on indicators, creating indicator sets that are accessible via the database. These sets of indicators can then be used to measure progress towards the green economy according to different visions of the pathways that need to be taken.

The purpose of this paper is to provide a framework to help identify which indicators should be included in the NETGREEN database, and to help inform the structure of the database. It is based on a literature review of 92 reports on the green economy,ⁱ interviews with 55 experts from the field,ⁱⁱ and discussion of our early findings with 39ⁱⁱⁱ experts at a seminar held in London in March 2014.

One difficulty of this task is that the definition of “green economy” and views on how it will be achieved are highly contested; as the European Environment Agency puts it “the term 'green economy' is not consistently defined, as it is still an emerging concept”,¹ although UNEP’s² definition^{iv} is perhaps the best known and most widely accepted. However, during our research we have found that, according to all definitions, a green economy is one that is environmentally sustainable in the broadest sense; that is, an economy that operates without infringing environmental limits. Because our aim is to be inclusive, we are using this as *our* definition^v and in Section 1 we report on the debate as to how to define environmental limits.

Beyond this, however, there is disagreement on what a green economy is and on how to achieve it, reflecting both different objectives and different perspectives on what is possible.

ⁱ See Annex 3 for a full list of the literature consulted

ⁱⁱ See Annex 4 for a full list of the experts interviewed

ⁱⁱⁱ See Annex 5 for a full list of seminar participants

^{iv} “[an economy] that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”

^v Note that in adopting this definition, we are **not** suggesting that improved social justice is not a necessary part of the transition to a green economy, or is not desirable in itself. We are simply adopting a definition that allows us to be inclusive of the wide range of work in this area. Nor are we ignoring the importance of resilience in the face of environmental shocks.

Figure 1: The key positions described in each section of this document

1. Environmental limits	2. Objectives	3. Strategic approach	4. Interventions	5. Political acceptance
Environmental limits exist	Environmental sustainability	Technological innovation will play the key role	Incentives and regulation can work	Transitioning does not imply trade-offs
	Employment & business opportunities	Socio-economic change will play a key role		
	A better quality of life for all	Achieving change is unlikely until disasters happen	Structural change is preferable	Transitioning implies trade-offs, which must be managed

In Section 2 we describe the different objectives we have come across, and in Sections 3, 4 and 5 the different views on how to achieve a green economy. We describe briefly the debate about international relations in Annex 1. The key positions that we describe in Sections 1 to 5 are presented in Figure 1.

1 :: Environmental limits

During our interviews with experts, we found that the work on planetary boundaries led by Johan Rockström et al. in 2009³ (see Box A) is generally accepted as a good starting point from which to conceptualise, communicate and measure what would constitute environmental sustainability. Having said this, a range of criticisms of using planetary boundaries as part of the process of measuring progress towards a green economy were made during the interviews we carried out, including:-

- Using the planetary boundaries as a measure of environmental sustainability would fail to capture information about the depletion of natural resource stocks (see Box A)
- Setting limits at a global level is problematic because:
 - Policies tend to be set at national and sub-national levels, while the planetary boundaries provide global-level boundaries
 - Global limits tell us nothing about how the impacts of breaching those limits will be distributed throughout the planet
 - Global limits on environmental degradation cannot simply be apportioned based on a factor such as land area or population, as the variance in ecosystems across the globe would also have to be taken into account
 - There are important regional and local limits which are not detectable in discussion of global limits.
- There remains a great deal of uncertainty around precisely where the limits lie and thus about how seriously to take the limits, and we know too little about how reaching one environmental limit affects other environmental limits.
- Degradation may be damaging before the boundary is reached, and the concept could create the illusion that this is cost free. In other words, the idea of limits or boundaries should supplement, and not replace, externality pricing (Rockström et al. would no doubt agree).
- It may be impossible to construct adequate early warning indicators – tipping points are just too unpredictable and there are time delays in signals for certain limits – the use of boundaries may therefore create

false reassurance.

- According to Rockström’s approach, breaching the planetary boundaries *risks* causing changes to the Earth system which threaten human survival. This introduces a normative dimension to the use of planetary boundaries, in so far as decision-makers must make an assessment of the amount of risk that they’re prepared to accept (in terms of threatening human survival), against the social and economic implications of acting to avoid that risk.

These criticisms mean that indicators based on planetary boundaries will have to be supplemented in various ways, even as ultimate measures of environmental sustainability outcomes.^{vi} However, the experts we interviewed tended to agree that the concept of environmental limits is a valuable tool to communicate the need to transition to a green economy, and that prolonged discussion on the exact values of limits should not be allowed to postpone action when the direction that should be taken is already clear. This has implications for the kind of indicators to be used: direction and speed of travel may be more important than precise distance to the limit.

Box A: Environmental limits and natural resource depletion

Rockström et al.’s work identified nine planetary boundaries which represent the limits of the safe space for human development. The boundaries are the lower end of the range of possible values for tipping points - points beyond which “irreversible and abrupt environmental change” may result. There are boundaries for climate change, biodiversity loss, nitrogen removal from the atmosphere, phosphorus in the ocean, ocean acidification, land use, water consumption, ozone depletion, atmospheric aerosols and chemical pollution. Of these, according to the authors, the first two have already been crossed, the next four have not yet been crossed and the last two have not yet been measured.

In addition to these planetary boundaries, environmental limits can also refer to more local boundaries, defined in the same way by reference to tipping points, but where the consequences may not be global environmental change, but levels of degradation to the local environment agreed to be unacceptable. In either case, the critical point is that such boundaries represent tipping points, because the consequences of breaching them are so potentially severe, irreversible, and uncertain that the associated costs are so extreme that the externality cannot be priced.

^{vi} We acknowledge that such interventions are taking place – to some extent – at present, for example, through the implementation of national and regional emissions limits.

While the need to remain within environmental limits is recognised throughout the literature (either explicitly or implicitly) as a basis for which transition to a green economy is necessary, noticeably less emphasis is placed on the need to limit depletion of non-renewable natural resources. This seems likely to result from the uncertainty with which scientists are able to predict how much non-renewable natural capital remains available for extraction. This uncertainty, contrasted with current detailed understanding of safe limits for atmospheric concentrations of greenhouse gas emissions, may explain the greater emphasis on environmental limits (most notably, on the limit set for greenhouse gas emissions^{vii}). In addition, the potential for environmental degradation to rapidly escalate as a result of the feedback loop effects associated with overshoot of environmental limits seems likely to increase the sense of urgency surrounding environmental limits, which depletion of non-renewable resources is not subject to (this is not to say that depletion of non-renewable resources doesn't represent significant challenges to humanity).

With the exception of Herman Daly,⁴ who calls for depletion quotas to be auctioned by government, those authors who do acknowledge the need to limit depletion of non-renewable natural resources tend not to set explicit policies and targets for limiting natural resource depletion, which seems likely to be due to the previously stated uncertainty surrounding remaining stocks, and therefore the degree of action required. Instead, these authors tend to call for inclusion of changes in the stock of natural resources in national accounts.^{5,6}

2 :: Entry points: different objectives for a green economy

Our research has identified three broad objectives held by individuals seeking a transition to a green economy:

1. **Environmental sustainability**
2. **Employment and business opportunities**
3. **A better quality of life for all**

These objectives are not mutually exclusive: it is possible, and in some cases likely, that an individual will hold more than one of these objectives.

The most likely combinations of objectives, and those likely to hold them are as follows:-

- **Environmental sustainability:**

^{vii} For some non-renewable natural resources, it is possible to track the resulting emissions associated with their use in order to gain some understanding of the rate at which the resources are being used up (for example, the use of fossil fuels can be understood to an extent through tracking the concentration of carbon in the Earth's atmosphere); however, this only gives an indication of the rate of use, and not the stock of resources remaining.

- Environmentalists who do not also have a social agenda
- **Employment and business opportunities:**
 - Businesses seeking to profit from markets which expand as a result of the transition to a green economy
 - Governments hoping to increase standards of living, which also recognise the opportunities created by the transition to a green economy
- **Employment and business opportunities, *and* environmental sustainability:**
 - Businesses seeking to profit from markets which expand as a result of the transition to a green economy, which also believe that failure to achieve sustainability will have a damaging long-term effect on profits
 - Governments who recognise the imperative of sustainability but are looking to minimise socio-economic change while increasing standards of living
- **A better quality of life for all *and* environmental sustainability:**
 - Environmentalists who also have a social agenda
 - Social campaigners/progressive politicians who believe in the importance of environmental sustainability for achieving social objectives
- **All three objectives**
 - Social campaigners/progressive politicians/governments who believe in the importance of the environment for social objectives, but who also believe in the importance of employment and business opportunities for those objectives

These objectives, which are influenced by individuals' motivations, experiences, and exposure to information and ideas, as well as other external factors, result in divergent views on how to achieve a green economy. In the following sections, we describe the key points of disagreement regarding:

- The strategic approach needed to achieve a green economy (Section 3)
- The types of interventions needed to operationalise the strategic approach (Section 4), and
- The action necessary to gain political acceptance for the changes needed (Section 5).

In the discussion below, we have framed the disagreements in terms of what participants believe will *work* to deliver a green economy. We believe this

stands up intellectually – you really can explain the differences in these terms – but we also believe it may help de-polarise the discussion and help create some convergence between different view points. This is in contrast to the framing in terms of attitudes to growth adopted elsewhere (i.e. the choice is presented as a choice between a “green-growth” strategy and a “steady state” or “de-growth” strategy)^{viii} which we think can lead to unconstructive polarisation and caricature.

3 :: Strategic approach: technological versus socio-economic change

The first key area of disagreement about how to achieve a green economy is over the relative importance of technological and socio-economic change^{ix} (the latter driving consumption and sometimes referred to misleadingly as “behaviour change”). At one end of this spectrum, technological innovation is predicted to be so successful that it allows a transition to a green economy, with consumers barely noticing, or at any rate tolerating, any increased cost of living or changes in relative prices. In other words ‘absolute decoupling’^x based on new technologies allows increases in living standards to take place without increases in environmental damage^{xi}.⁷ Some more cautious proponents of this view, whilst recognising technological innovation as critical in order to progress towards a green economy, also acknowledge that the probability of such innovation producing decoupling to the extent needed is uncertain. Adherents of this perspective recommend that we have a ‘Plan B’, in case technological innovation is not successful.⁸ Other variations on this view emphasise the importance of new business models and “the circular economy.” We group these perspectives under “View 3.1: Technological innovation will play the key role”. The view at the other end of the spectrum is that much of the technological change will be either expensive, or may simply not come about. The implication is that living within environmental limits will involve much higher prices for some goods, with the use of natural resources limited through changes to consumption patterns. This will involve either a reduction in aggregate consumption (in the developed world), or at least a change in

^{ix} We use the term “socio-economic change” here, rather than the narrower “behaviour change” in order to capture the relation of economics to social values, as well as more direct behavioural change.

^x It is useful to detail the difference between relative and absolute decoupling here. With relative decoupling, processes become more efficient, but emissions continue to grow as production grows; with absolute decoupling, processes become efficient enough that efficiency gains also negate increases in emissions associated with growth in production, and the absolute levels of environmental degradation fall.

^{xi} What is described here is a slightly different form of decoupling than decoupling from GDP growth, which is a poor measure of living standards, and which could be sustained by, for example, increased expenditure on more expensive forms of energy.

what is consumed. We call this “View 3.2: Consumption patterns which limit natural resource-use will play a key role”.

At first sight, the question appears to be simply about the scope for technological innovation, or more precisely two questions:-

1. To what extent will technological innovation eliminate the threat to the environment associated with the production of certain goods?
2. To the extent that it will, how expensive will this be, and thus how great will the impact on consumers (and voters) be?

However, our research (described below) leads us to believe that, whilst there is disagreement about what technological innovation can be used to achieve^{xii} (with some taking it as axiomatic that it cannot achieve what is needed), the intrinsic uncertainty of technological development means that often what really divides opinion is as much about the extent to which socio-economic change will be possible and/or inherently desirable as about technology.

View 3.1: Technological innovation will play the key role

According to this view, the economy will continue to do what it does now, producing broadly similar goods but at much higher levels of environmental efficiency. Our review of the literature and interviews with experts suggests that proponents of this view may well accept that technological development is uncertain (i.e. not all advocates of this view have absolute faith in technological progress, although it is possible that some do^{xiii}). However, the holders of this view believe that technological improvements are *more likely* to deliver a reduction in environmental degradation than significant changes in consumption patterns (the only alternative), whether changes in consumption patterns are the result of individual or collective (i.e. political) decisions, and whether the changes involve new forms of consumption which is less resource intensive than existing forms, or simply less consumption. In other words, advocates of this view believe that there won't be a significant shift to environmentally sustainable consumption in the future, any more than there has been in the past 20-40 years. Some proponents of this view also believe that consumption patterns reflect free choices and that therefore changes *should not* happen, but this is an extreme view and not essential to the

^{xii} Constraints on technology include associated risks, i.e. in some cases technological developments (such as nuclear power generation, fracking and genetically modified food) have been rejected because their use is deemed to be too risky.

^{xiii} We recognise that in some production sectors there are high levels of certainty regarding the feasibility of decoupling a specific form of production from environmental degradation, without implying restrictive increases in product prices; however, we are not aware of any proponents of the view that absolute decoupling is certain across all production sectors in the economy.

position. The broader view is that given the difficulty of achieving consumption changes, it is better to focus efforts on what might work than on what clearly won't work. Indeed attempting to change consumption creates the risk that voters and thus politicians will be alienated from environmental projects, and that as a result, even technological innovation will not get the support that it needs to optimise. It is also true that many of the commentators who adhere to this view are more sanguine about our ability to remain within environmental limits than adherents of View 3.2; as a result they may be willing to accept worse environmental outcomes in order to achieve higher economic or social outcomes.

A more cautious variant of this view reflects greater concern about the possibility of technological failure. It accepts that as things stand, we should concentrate on technological innovation and investment rather than the much more problematic socio-economic changes that are the only alternative. However, given the uncertainties, these more cautious proponents believe that we should at least prepare for socio-economic change of the kind suggested by proponents of View 3.2 (described below), so that if technology does not deliver, an alternative pathway will be open to us. In other words, it is possible, even likely, that the necessary technology will increase the cost of living or any rate the cost of certain highly valued goods – and in some cases fail to deal fully with the environmental problem. Proponents of this view may also draw attention to the likely impacts of raw material price increases (especially food and energy). It is therefore necessary, according to this point of view, to think seriously about what will make these extra costs and changes to consumption patterns politically acceptable, in the way that proponents of View 3.2 do.

A further variation within View 3.1 is the position that there is no realistic alternative to the growth-oriented capitalism that we have now – or at any rate, no high-wellbeing alternative – and as such, de-prioritising growth (a stance typically associated with those advocating radical changes to consumption patterns) is both unrealistic and undesirable. Some commentators believe that very significant improvements to environmental efficiency can be made, even given existing knowledge, and that while there will be costs to the consumer, growth will pay at least some of these costs and make them acceptable. So we might be able to rely on existing technology (which the Centre for Alternative Technology regards as being capable of allowing countries to reduce their greenhouse gas emissions to net zero), even if at substantial cost.

It should also be noted that proponents of View 3.1 generally accept that marginal changes to consumption patterns are possible and useful. Such changes might take the form of moral or socially-driven choices not to use environmentally damaging products, encouraged by increasing people's awareness of the environment and of how what they do affects it through the use of labels, or by 'nudging' through the use of modest differential taxes on

goods and services, and regulation and rationing of harmful products. It is also acknowledged that changes to technology can produce changes to consumption patterns. For example the technology which has allowed creation of websites such as eBay has also strengthened communication links between individuals, and this has presented the opportunity to greatly increase consumption of second-hand goods. However, it is generally accepted that these kinds of changes will not be sufficient on their own.

View 3.2: Socio-economic change which limits natural resource-use will play a key role

Proponents of this view do not deny that technological breakthroughs could make a huge difference; however, they believe that sufficient technological innovation at sufficiently low cost is at best highly uncertain. They also believe that simply rolling out existing technology will be expensive (i.e. will have to be paid for through reduced consumption) and/or it will be insufficient (i.e. will have to be supplemented by reduced or changed aggregate consumption). They also tend to be relatively sanguine about the likelihood of changes in consumption patterns, whether to less resource-intensive consumption, or simply to lower levels of consumption. Hence they place more, or at least as much, emphasis on achieving them as on technology.

The foundation for this optimism is the evidence from survey data that *beyond a certain point*, consumption is not a particularly important driver of wellbeing⁹ ¹⁰ ¹¹. Other things then matter more, for example security, job satisfaction and social relationships¹². If this is the case, it may be possible to change patterns of consumption, or restrict growth in consumption without too much damage to wellbeing. Indeed, it may even be possible to increase wellbeing.

Of course, attempting to restrict increases in consumption under current conditions would provoke quite strong resistance, and is highly unlikely to be suggested by any politician; however, it follows from the evidence on the connection between consumption and wellbeing that at least some of this resistance does not stem from the impact on wellbeing as such, but from something else^{xiv}. Proponents of this view then suggest that this something else is not integral to human nature but is instead a function of socio-economic structures and culture, and can therefore be overcome. In other words, it should be possible to engineer our social and economic institutions (employing organisations, membership organisations, religious institutions etc.) and design government interventions (regulation, taxation etc.) in ways which would correct the bias to consumption engendered by modern capitalism, for example, by making shorter working hours more attractive.

^{xiv} The proponents of reducing aggregate consumption or restricting its growth generally accept that consumption for the less well off (in least-developed and emerging economies) should increase.

Some proponents of this view also believe that, even if it was possible to achieve environmental sustainability using technology alone, it would still be desirable to change consumption patterns, at least amongst that part of the population with more than adequate incomes. The argument is that less consumerist lifestyles in the top half of the income distribution would remove some of the negative social effects produced by inequality and by conspicuous consumption, and might even lead to better lives for those currently “overconsuming” and overworking in order to achieve this.

It should also be noted that many commentators in this group compared to the other groups are more worried about the environmental limits, meaning they would accept lower economic or social outcomes to achieve a better environmental outcome.

Much technological innovation is designed to increase energy (or other material) efficiency, and as a result the debate about the potential of technology has sometimes been coloured and perhaps confused by this. It has been clearly established that the benefits of efficiency gains on their own can be neutralised or even reversed by the so-called “rebound effect”,^{xv} whereby the financial savings generated are spent on other environmentally damaging activities. Thus if efficiency gains were the only fruit of technological innovation, it would be game set and match to view 3.2, and on occasion proponents of this view seem to imply that this is the case. In reality of course, technological innovation is also designed to decarbonise the economy, much reducing the importance of the rebound effect in the debate.^{xvi}

Consumption levels are also, of course, a function of population levels, which government can influence, for example through the empowerment of women by increasing education opportunities, especially in low-income, high-fertility countries. There are disagreements about how strong a role government should play in this, and it is an issue which tends to go largely unaddressed, due to the feeling that it is not politically acceptable to talk about controlling population levels.

^{xv} The rebound effect reasons that, as methods of production become more efficient, goods can be produced at lower cost, therefore allowing higher levels of consumption (either more of the same good, or freeing up income for alternative forms of consumption).

^{xvi} Once this understanding of technological innovation is accepted, two arguments come into play. First, renewables are currently more expensive than fossil fuels: the challenge is to allow the same amount of benefit from energy for a total cost to the consumer that is not too much higher than the current total cost. Until this is achieved there is no rebound effect. Second, once this is achieved there would only be a rebound effect if the energy system had not been decarbonised (or the other threats to sustainability in the production process not addressed).

View 3.3 Technological and socio-economic change is unlikely, until we experience significant shocks or disasters

There is a third view, which involves pessimism about the prospects of both technological and socio-economic change, reflected in the belief that the changes required to achieve a green economy will only take place after significant economic and/or social shocks, or even (in an extreme variant of this view) disasters. This does not mean that technological innovation and socio-economic change is pointless – clearly limiting the scale of shocks or likelihood of disasters, and developing technologies, infrastructure and attitudes that will be useful after the shocks, are valuable. However this view draws attention to the need to prepare for these shocks: to ensure that the economy is capable of adaptation, and that it exhibits a kind of positive resilience. Such considerations might include how easily a national economy will be able to adapt to important supply chain disruption due to major regional conflict, or how a country could insulate itself from such conflict. Clearly, national security and self-sufficiency in key raw materials start to become ever more critical objectives.

4 :: Interventions

Almost everyone agrees that whatever mix of technology and consumption change is needed to produce a green economy, government intervention will be needed at local, national and international levels (it is also acknowledged that, on occasion, changes can happen without government intervention, for example, where waste or energy efficiency improvements are profitable at existing prices, or where an organisation acts in order to attract green consumers, by “greening” its products or image). However, there are disagreements about the form that this government intervention should take.

According to standard economic theory, environmental damage is an externality, and externalities can be dealt with through some combination of pricing and regulation. Thus theoretically, the shift to a green economy can be achieved using these conventional tools, as correctly set prices will drive the market to respond appropriately, stimulating investment in new technologies, and new, environmentally friendly products. Perhaps the most perfect expression of this idea is the view that climate change could be dealt with by setting a global cap on carbon emissions, with tradable pollution permits allocated in a global market.

In reality, almost no-one believes that such a simple solution could work, largely because there would be some serious losers subjected to injustices (e.g. fuel poverty, inequality), or there would be insurmountable resistance from powerful groups. A good illustration of this is the difficulty of

establishing an effective European carbon price to drive change. Faced with this, the question becomes the extent to which externalities can be internalised through conventional mechanisms, and to the extent that they cannot, how change to investment in technology and consumption patterns can be achieved.

There appear to be two main points of view with regard to this. One is that a skilfully designed, and inevitably complex, array of incentives and regulations designed to influence behaviour and co-ordinated at an international level will be able to drive change without creating impossible opposition. We call this the “View 4.1: Incentives and regulations can work”. Within this, there are nuances with regard to the extent to which “light” regulation, such as incentives and directives which set minimum standards about the “greenness” of certain products will be sufficient, or whether more intrusive regulation is needed. In addition, some of the proponents of this view draw attention to the need for ‘strategic’ regulation designed to influence long-term investment in green sectors, and to create policy certainty.

The alternative point of view is that while regulation and incentives can make a contribution, they cannot achieve the level of change needed for two reasons: first, they will provoke opposition and at best be watered down, certainly at the international level at which they need to operate; second they will become too complex and difficult to manage. Accordingly, changes to economic structures will be more effective. Some proponents of this kind of change also believe that such changes could produce other benefits, for example a radical power shift away from existing elites. Government therefore should show initiative, by leading the way in terms of investment, creating structural change, and pushing for a new international settlement. We call this “View 4.2 Structural change is preferable”.

View 4.1: Incentives and regulation can work

According to this view, existing and new regulations and incentives of the kind already in place will be sufficient to effect the transition to a green economy. The key assumption is that while there will be losers, government will still be able to introduce these without a strong backlash - or fear of a strong backlash, whether from business or consumers/voters. This would imply a gradual transition with no structural changes to the economy.

Thus, proponents of this view judge firstly that a critical mass of *business* will welcome regulation and incentives that helps them to green their operations. This may be because their assessment is that the measures reduce the risks associated with resource scarcity or the risks associated with more stringent regulations being introduced in the future , or because they believe that regulation will create new markets and for some firms create a competitive advantage in those markets, or because corporate social responsibility plays an

important role. In general, this support will depend on any regulations or negative incentives (taxes etc.) being introduced at an international scale over a reasonably short period, i.e. preserving a level playing field and preventing ‘carbon leakage’ and similar distortions. This means that supporters of this view must assume that international agreement on a package of measures can be agreed (having said which, there are some relatively low-cost improvements in efficiency that could be introduced unilaterally, and which could drive improvements in other countries who want to export to the regulated markets.)

The assumption is also that *consumers and voters* will also support such policies for one of the following reasons:

- They take a long-sighted view and therefore perceive the necessity of action in order for the benefit of future generations.
- They can be convinced that an increased cost of living is not implied by such policies, or that the increased cost will have less of a negative impact on their wellbeing than damage done to the environment.
- They can be persuaded because of the prospect of green jobs, whether these are the results of investment in green infrastructure or processes (i.e. in the transition to a green economy) or the results of new competitive advantage.

We return to the assumptions about consumers and voters in the section on politics below.

It is easier to make these assumptions if you don’t think tough regulation or high externality prices will be needed, either because the limits are not so close, or because they are not absolute (see section 1) and that therefore the normal political and economic bargaining processes for managing other trade-offs will be adequate to set the optimum level of taxation and regulation.

Some commentators, while agreeing that regulation and incentives are needed, draw attention to the lack of policy credibility: that is to the widespread belief amongst investors and in the business community that government policy will not develop sufficient teeth to deliver a green economy, and therefore that long term investment decisions should not be made on the assumption that it will. At the very least, businesses believe bets should be hedged. The resulting investments then create lock-in to unsustainable production, rather than the kind of technologies that will help to achieve government-set targets. This lock-in then drives business to lobby against regulations and incentives. What is needed, it is argued, are additional measures to stimulate long-term investment in the green economy, and thus create a different kind of lock-in. This will then incentivise business to lobby *for* the right regulations and incentives, making them far easier to achieve.

These measures are all commitment devices – ways of building the credibility of statements about future policies. They can include legally binding contracts (as in the case of energy prices), treaties (including the treaties underpinning the European Union), investments by government (‘putting your money where your mouth is’), and cross-party agreement on core policies.

View 4.2: Structural change is preferable

Proponents of this view agree that incentives and taxation are part of the solution and that the existing system creates lock-in to an unsustainable economy and that this needs to be corrected. However they either believe that the kind of commitment devices proposed in View 4.1 will not be strong enough to achieve what is necessary, or that an alternative approach produces additional benefits, and is therefore more desirable. Thus proponents of View 4.2 tend to favour a more radical set of socio-economic changes.

The lack of faith in the kind of commitment devices proposed in View 4.1 may be due to a sense that such devices cannot signal effectively the very significant level of change needed (the more radical the change, the stronger the device needs to be). It may be because financial investors are particularly unresponsive to signals and incentives about the long-term. And it may be because such devices do not deal with political opposition from consumers/voters, but only from business. In addition, some proponents of this view believe that in the absence of structural change, regulation and incentives will become inefficient: too extensive and too complex to manage, as well as too unpopular.

Whether this view is adopted based on lack of faith in View 4.1, or belief that an alternative approach can produce a better outcome, the types of changes advocated are broadly the same. These may be designed to *create constituencies for change*, including businesses that can thrive in a sustainable world, or otherwise create the conditions in which regulation is acceptable (as in the smoking ban case), *create the conditions in which static aggregate consumption is acceptable* – for example more equality, *create new decision making structures* (including financial decision making structures) that side step the existing market system and all of its well-recognised failures, or *provide an alternative to (unacceptable) regulation*, for example through direct investment in sustainable infrastructure. They are also designed to *undermine the forces that block change*.

For the most part, these objectives as just described are not made explicit. The actual proposals include: ways of creating higher levels of wellbeing for any given level of output; higher levels of equality; encouraging fewer working hours; more of the economy serving local markets, perhaps encouraged by local currencies, and thus relatively less long distance trade; fewer very large

enterprises; a financial sector that is owned locally and serves local industries and small-medium enterprises; an active role for the state in planning and developing green industries and businesses that generate high wellbeing for both customers and staff; more mutual organisations and other changes to governance structures; new political narratives and headline measures of societal and economic progress; reducing the power of global financial markets – and so on.

5 :: Political acceptance

Several times in this paper, we have mentioned the role of optimism about the likelihood of change. Underlying much of this is a disagreement over what will be politically acceptable. This question is critical within both developed and developing countries, and at the international level. Box B sets out the four main types of policy proposed in the literature in order to build the necessary support for effective collective action.

In addition to these policy proposals (which are not mutually exclusive), we came across two broad strategies for building support, which can be framed in terms of their approach to trade-offs: “View 5.1: Transitioning to a green economy does not imply trade-offs”, “View 5.2: Transitioning to the green economy implies trade-offs, which must be managed”.

Box B: There are four main types of substantive policy advocated to build support or reduce opposition to change:

- **Job creation**, whether within existing economic structures, or within economic structures that have been reformed to better reconcile green and commercial objectives; to the extent that those advocating this admit there is a political problem, the idea is that the political gains from job creation potentially outweigh the political losses from reduced consumption. As noted in the section on interventions, there is disagreement on how active policy needs to be to deliver this.
- **Burden sharing**, i.e. increased equality and security, reinforced social solidarity, a focus on meeting essential needs and building human capability. This may be put forward as an end in itself, a moral imperative. However it can also be proposed as a political precondition for transition, both in domestic politics (since it means that the costs of the investment needed and of sustainable consumption are born by an electoral minority), and in international negotiations (potentially reinforcing political support for transition within developing countries). In the absence of the latter, the green economy can appear to be a rich country’s objective. It can be achieved through a range of redistributive and ‘predistributive’ measures domestically, as well as through international transfers and investment. Most commentators will agree

that some burden sharing is needed – the disagreement is over the extent of redistribution required within and between countries and how to achieve it. For more on social justice measures proposed, see Box C.

- **Encouraging new conceptions of the good life** which politicians can deliver within environmental limits. This is as discussed in section 3.2. Those with these new conceptions then care less about a loss of income as compared with business as usual. As already noted, only some commentators think this is either realistic or desirable.
- **Stimulation of locally focussed economic activity**, which involves technological and institutional innovation that simultaneously delivers environmental performance and better lives. These innovations tend to encourage local economic activity – that is, production of goods and services that are consumed locally. The idea is that the reduced scale increases individuals’ sense of control, and reduces the opportunities for an elite to appropriate value, and that these (more than) compensate for any reduced economies of scale. They also reduce the environmental damage associated with the global trading system. This can be delivered through local economic planning. To the extent that it is successful, it creates a group of people benefiting from the green economy and thus an electoral constituency.

View 5.1: Transitioning to the green economy does not imply trade-offs

Many commentators on the green economy stress that transitioning will produce benefits, particularly economic benefits. These may consist of new markets and green jobs (see Box B), greater resilience to shocks, or even an economy in which more satisfying lives can be achieved. Proponents of this view may state that these benefits will outweigh the costs of transitioning to a green economy,^{13 14 15} and as such, there is no trade-off, and no political difficulty associated with transitioning. According to this perspective, the transition is underway already, and where blocks to progress exist, these are not political: for example, the technology required for pathway envisaged does not yet exist^{xvii}.

A related view is that it is not helpful to emphasise trade-offs. UNEP, for example implies that the *belief* that there is a problem itself creates the political problem for sustainability^{xviii}, and that there is no underlying problem. The importance of framing this as a ‘win-win’ situation (‘green growth’) has been emphasised by international organisations, where it is believed that a

^{xvii} Shortage of investment is in fact a political difficulty because it reflects either inadequate policy or lack of belief in consistent government policy as discussed above

^{xviii} This may well be true – GDP and other measures of economic progress may continue to rise, particularly in the developing world - but this does not mean that the consumption of certain powerful groups may not have to fall.

politically attractive pay-off has to be demonstrated in order to gain support for meaningful action.

The extent to which either variant of this view is plausible will depend on how large-scale the changes needed are perceived to be – the larger they are, the larger costs, and therefore the larger the compensating benefits needed.

View 5.2: Transitioning to the green economy implies trade-offs, which must be managed

Other commentators make the case that as things are now, the pay offs from green growth will be too weak to compensate for the associated costs – at least if ‘green’ means as green as is needed.¹⁶ This is for a range of reasons, for example it may be that the pay-offs could be created in much more cost effective ways than transitioning to a green economy, or that they will only benefit certain groups, and will make things more difficult for other groups. Advocates of this view tend to think that acknowledging these difficulties is the first step to dealing with them.

Approaches to this latter stage include:

- Burden sharing so that an electoral coalition (or international coalition) for change can be constructed (see Box B with more detail on social justice measures in Box C).
- Development of new narratives, for example framing the issue as one of security, and active engagement with stakeholders and civil society organisations. Targets, indicators and data (including new ways of presenting national accounts) are part of the armoury of making change happen: they are political tools, forming the centre piece of a narrative, in the way that GDP forms the centre piece of the growth narrative.
- Increasing transparency and accountable decision-making as part of the process of challenging powerful interests. The assumption being made here is that the trade-offs are more difficult because of the power of these interests, and that transparency will reduce this power.
- As described by the World Bank¹⁷: “local strategies are needed because what works depends on local political economy”; this requires an “analysis of acceptability and urgency” and prioritising accordingly – acceptability is greatest where local benefits (e.g. jobs, increased safety) offset the transition costs; urgency is where there are lock-in effects in the absence of action (e.g. land use planning).

A more radical variant on this view is that structural change is needed to make the trade-offs less acute. This view is proposed for a range of reasons, but

partly because it is expected to facilitate a change in aspirations and thus the terms of the trade-off. So, for example it has been proposed that we will need an economy where shorter working weeks, accompanied by support for the lowest-earning members of society, become acceptable to citizens, and indeed, are viewed as a benefit rather than a cost associated with transitioning. This requires much greater economic equality. More generally, the economy can be managed explicitly to achieve the various drivers of wellbeing: economic security, social contacts, improvements to the physical environment, improved health, and so on.

Structural change could also involve making changes to the rules of the game in order to align social and private interest. The Dutch Sustainable Growth Coalition¹⁸ of large businesses calls for aligning business incentives with social and environmental progress – with businesses actively pursuing long-term value for a range of stakeholders.

Box C: Measures advocated to increase social justice

A very wide range of measures are advocated, which are grouped below. An important observation is the lack of discussion of the trade-offs associated with the measures described below, which is largely omitted from discussions of social justice in the literature.

- ***Delivering good jobs.*** This involves both creating and supporting jobs and ensuring that as many jobs as possible are ‘good’, in terms of opportunities for training, adequate wages, safe working conditions, job security, reasonable career prospects and workers’ rights (all this an obligation that government needs to encourage *business* to bear, and so represents a trade-off in terms of winning support from business in terms of transitioning to a green economy). It also involves ensuring access to the labour market - provision of information, and education and training for all, including all ages. This call for higher levels of employment implies greater levels of production and consumption levels, unless the new jobs created are carefully formulated to address such.
- ***Ensuring fair access to resources and services.*** In addition to education and training, this includes ensuring access to clean water and basic sanitation, clean energy, knowledge, health and care services, housing, and all other basic goods and services that are essential for life and health. A difficulty associated with this will be determining at what level such resources and services cease to become essential.
- ***Ensuring decent local environments and communities.*** This includes local economic development, particularly to increase local resilience, support for culture and sports, safety, solidarity – and more broadly promoting cross-cultural sensitivity and education and anti-discrimination measures. *Business strategies* should also include strengthening communities particularly in the least-developed and emerging economies, for example by developing products that help vulnerable people, or that are widely

affordable. They can also partner with communities to preserve natural resources.

- ***Creating income and wealth equality***. In addition to what is delivered through good jobs and fair access to resource and services, this can involve maximum and minimum wage or income limits, progressive taxes (including a financial transactions tax and anti-avoidance measures), income support and social protection measures (including to help limit damage to workers most likely to be affected by the shift to a green economy), universal child-care benefits, work sharing, addressing gender inequality, emergency poverty relief and many other mechanisms. Such measures would seem to be designed to comply more directly with the social components of definitions of a green economy, and the environmental aspects more indirectly. ***Management of property rights and rights over common resources***. This includes reviewing intellectual property rights; better definition and enforcement of common resource use rights, for example in the high seas, mangroves, coral reefs, flood plains and forests; payments for ecosystems services; and strengthening of the land and natural resource ownership and access rights of the poor. Most developing countries face enormous economic pressures to overexploit their environmental resources, especially where tenure or use rights are insufficiently defined or enforced. There could be international interest in creating conditions that reduce these pressures.
- ***Fair allocation of the costs of sustainability*** through international agreement to internalize environmental and social costs on their products; with costs shared by the government, business and individuals, and equal per capita resource and emission caps.
- ***Sustainable food security***: through sustainable systems of production and distribution, including more effective incentive systems which will allow global access to sufficient nutrition.
- ***Democratic governance structures*** such as a 'Green Economy Council' to engage both business and civil society; steps to ensure that tribal and indigenous people have power over resource extraction; access to media; strengthened democracy. *Businesses* will need a broader understanding of value creation than they have now (ie not just profit) which implies stronger engagement with stakeholders, and perhaps reformed ownership and governance structures (e.g. co-operatives).
- ***Targeted development aid designed to increase sustainability and capabilities***. This may involve increased aid overall, including debt restructuring, but there should be a focus on: technology and knowledge transfer, strengthening technical and scientific cooperation, fighting corruption, incubators, dedicated funds to de-risk entrepreneurial investments and stimulate intellectual property sharing and innovation, special funding mechanisms (such as financial transfer and transaction taxes) for renewables, energy and resource efficiency, infrastructure and the protection of 'carbon sinks' and biodiversity.

- ***An improved international trade regime*** that involves: fewer discriminatory provisions, non-tariff barriers and less protectionism - but conversely could involve a carbon levy on imports from developing countries; increased negotiating capacity of developing countries with transnational companies; improved international co-operation, governance and agreements on access to vital resources; and consistency between aid, trade, technology and other policies so as to support inclusive green economy transitions. Such measures may imply green trade rules being used, or perceived, as trade barriers against developing countries.
- ***Encourage new models of development*** that are more sustainable instead of following the path of most rich countries.

End notes

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