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Synergies and trade-offs between green growth policies and inclusiveness.

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List of abbreviations

AfDB	African Development Bank
CGE	Computable General Equilibrium
GDP	Gross Domestic Product
GE	Green Economy
GGBP	Green Growth Best Practices
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
IDCOL	Infrastructure Development Company Limited
ILO	International Labor Organization
IPCC	Intergovernmental Panel on Climate Change
OECD	Organization for Economic Development and Co-operation
SHS	Solar Home Systems
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organisation
WEF	World Economic Forum
WIEGO	Women in Informal Employment Globalizing and Organizing

Preface

The impacts of climate change, increasing environmental degradation and the depletion of natural resources as a result of economic growth and development are evidence enough of the urgent need to adopt an approach to economic growth that works within our planet's capacity for recovery. The strategies and policies needed to support green growth will lead to far-reaching, structural changes in the economy that will give rise to new industries, markets and business opportunities, and, likewise, bring about the decline of traditional, resource-intensive and polluting industries over time. These changes will often have a direct impact on individual and household incomes and on employment opportunities. However events unfold, the challenge of achieving poverty reduction and social development goals while pursuing green growth is, for developing and emerging countries in particular, of the utmost importance and urgency.

While green growth can create significant opportunities for growth and offers the chance for sustainable development, it may also require, at least temporarily, trade-offs between achieving environmental sustainability and realising social development objectives. What is needed, therefore, is smart and coherent policy planning that will achieve the synergies required to ensure green growth policy also contributes to the delivery of social development objectives. Given that the social impacts of green growth have so far received less attention than its economic and environmental consequences, the challenge is now to identify and communicate these possible social implications. This will not only enable the successful implementation of green growth strategies, but also help to build public support for green growth policies.

This discussion paper provides a checklist for analysing the social consequences of green growth strategies. It starts by offering both a theoretical background and definition of inclusive green growth, and then provides guiding questions to identify and investigate in depth the trade-offs and synergies that may arise. It ends by offering first ideas on how best to harmonise green growth policy objectives with social development goals at country level.

Executive Summary

Over the past 20 years, two major challenges have dominated international debate on sustainable development: the imperative of environmental protection and the eradication of all dimensions of poverty. Economic growth lies at the heart of both these issues. It is required to reduce poverty but, at the same time, needs to be decoupled from natural resource use and greenhouse gas emissions in order to preserve the livelihoods of current and future generations. Several concepts aim to reconcile this dilemma, such as the United Nations Environment Programme's (UNEP) Green Economy initiative, the Organisation for Economic Development and Cooperation's (OECD) Towards Green Growth initiative and the World Bank's Inclusive Green Growth framework. While these concepts offer much to delineate green and inclusive growth, many important aspects remain vague. As such, they do not facilitate a systematic assessment of interactions (i.e., synergies and trade-offs) between the green and inclusive dimensions of growth, even though – and particularly in developing countries – this is a central concern of policymakers.

Becoming more precise implies having to take decisions on the scope of 'greenness' (for example, which environmental impacts to include, and whether or not to set a benchmark related to the Earth's carrying capacity) and on the intensity of inclusiveness (are we avoiding harming people living in poverty, benefiting them or disproportionately benefiting them?). This paper proposes a precise and normative 'gold standard' definition of green and inclusive growth that very stringently specifies both the environmental and social dimensions. While this 'gold standard' definition should henceforth constitute the aspiration of green and inclusive growth policies, it may prove challenging to realise in practice. For this reason, a less stringent 'minimum requirement' definition is also provided. Based on these definitions, the paper then develops a checklist of impact channels through which green growth policies can affect people living in poverty. In this way, it seeks to address the concerns of many developing-country governments that green growth policies may have negative social impacts.



1. Green growth and inclusiveness as two major global challenges

Over the past 20 years, two major challenges have dominated international debate on sustainable development. The first is the imperative of environmental protection, the acuteness of which becomes more and more apparent as new scientific evidence emerges. Despite international commitments – for instance, in the context of the Earth Summits in Rio de Janeiro and climate change negotiations – we continue to overstretch the Earth's carrying capacity by polluting our water, air and soil, by over-exploiting natural resources like, for example, our fish stocks, and by exceeding the capacity of our oceans and plants to absorb carbon dioxide and other greenhouse gases. Global Footprint Network, a non-profit organisation, estimates that it currently takes our planet a year to replenish the renewable resources that humanity consumes in about eight months (Global Footprint Network 2012). The Intergovernmental Panel on Climate Change's (IPCC) fifth and most recent assessment report warns us that anthropogenic greenhouse gas emissions have continued to rise at increasing rates of growth (IPCC 2014). This shows that, if we are to maintain acceptable living conditions for ourselves and future generations, there will need to be a radical change in the way we use our planet's natural resources.

However, in our efforts to protect the environment we cannot neglect the second global challenge: the promotion of human development and eradication of all dimensions of poverty (lack of income, education, health, access to water, etc.). This aspiration found its main expression in the 1995 Copenhagen Declaration on Social Development and in the Millennium Development Goals formulated in 2000–2001 that are due to be met by 2015. New targets for the post-2015 period are currently under negotiation.

Economic growth lies at the heart of both issues. It is required to reduce poverty but, at the same time, needs to be decoupled¹ from natural resource use and greenhouse

gas emissions in order to preserve the livelihoods of our current and future generations. Reconciling this dilemma and guiding the necessary and ground-breaking transformation of our traditional economic structures towards inclusive green growth constitutes the conceptual aim of several initiatives, such as UNEP's Green Economy, OECD's Towards Green Growth and the World Bank's Inclusive Green Growth framework. Underlying all of these terms and conceptual frameworks is the promotion of a transition to a green economy that is low carbon, resource efficient and socially inclusive. The idea of a green economy explicitly focuses on the positive and reinforcing interlinkages between the economy, environmental sustainability and social development. However, the trade-offs and conflicts within these three dimensions of sustainability have received less attention.

Given that future growth policies will need to strengthen the environmental aspect of sustainability while remaining relevant for equally important objectives like poverty reduction, developing-country governments in particular require guidance on how to foster synergies and address trade-offs between the objectives. Knowledge about potential synergies can help maximise the development outcomes of both the social and environmental dimensions of sustainable development. Meanwhile, knowledge about trade-offs is essential for designing strategies and policies that deliver a green economy in a coherent way and avoid pitfalls and obstacles to implementation. This includes knowledge about developing policies suited to local circumstances, prioritising action areas and sequencing policies. Knowledge about the interlinkages between green growth and social aims is also relevant for discussions in the global arena, particularly as the international community is currently in the process of developing and negotiating global goals and targets for the post-2015 agenda that are meant to reconcile the social and economic dimensions of sustainable development with its ecological dimension. To arrive at a politically feasible agenda that maximises synergies and manages trade-offs, these negotiations need to be informed by robust evidence and, where possible, by lessons learned within countries. However, there are still gaps in the required knowledge base. Existing academic work is fragmented and focuses on specific policies and other aspects, and thus fails to provide a comprehensive picture. Furthermore, when it comes to the design and

1 In the case of absolute decoupling, environmental pollution stops increasing or even decreases (e.g. greenhouse gas emissions fall) despite economic growth. In most cases so far, it has only been possible to achieve a relative decoupling in environmental impact per unit of economic output, with environmental degradation continuing to increase, albeit at a slower rate relative to economic growth.



implementation of green growth strategies and action plans, there is a dearth of experience in addressing trade-offs and synergies in a more coordinated way and at a higher level. This means that practical examples are limited and very specific to their context.

This paper aims to develop an operational definition of inclusive green growth, drawing from strands of literature on inclusiveness and green growth, and to provide policymakers with a systematic approach for assessing synergies and trade-offs between the green and inclusive dimensions of growth. It does so by, first, providing an overview of the most relevant academic and political conceptualisations of green and inclusive growth and, then, by proposing two definitions of inclusive green growth: an aspirational ‘gold standard’ definition and

a ‘minimum requirement’ definition that may be more realistic to implement (Chapter 2). Next, a checklist for policymakers is developed to assess the impact of green growth policies on inclusiveness,² which is applied to several exemplar case studies (featured in Chapter 3). The paper concludes with policy recommendations on how to manage synergies and trade-offs through the development of a systematic approach to green and inclusive policymaking (Chapter 4).

2 Analysing the impacts of inclusiveness policies on green growth would be both possible and meaningful, but goes beyond the scope of this paper. This paper assumes that, given current trends with respect to climate change and environmental degradation caused by our traditional model of economic growth and development, it is essential to adopt a green approach to growth and development to preserve the livelihoods of current and future generations. As such, this paper takes green growth policies as a starting point and analyses their impacts on inclusiveness.

2. Inclusive, sustainable, green – a brief guide for negotiating the conceptual jungle

A | Inclusive growth

Inclusive growth ‘remains an intuitively straightforward and yet elusive concept’ (Ranieri and Almeida Ramos 2013: 10). Despite its widespread use in literature and policymaking, there is no consensus on a clear definition of the term; indeed, various institutions and scholars have come up with partly conflicting definitions (Klasen 2010: 1). However, some core features and similarities to other, related concepts can be established.

Inclusive growth is closely related to pro-poor growth, which is defined as either absolute or relative. Absolute pro-poor growth is that which benefits poor people in absolute terms (Ravallion 2004: 2) and relative pro-poor growth is that which benefits people living in poverty disproportionately (Kakwani and Pernia 2000) or harms them less in the case of negative per-capita growth (Duclos 2008), thereby reducing inequality (Grosse et al. 2008). However, both these definitions have been criticised. By designating growth that may have most benefited those not living in poverty as pro-poor, the absolute definition can be seen as a semantic contradiction (Negre 2010). Similarly, the relative definition designates growth that may have harmed people living in poverty as pro-poor just because it harmed them less than it did the rich (Ravallion 2004).

The inequality aspect does, however, merit particular attention. Rising inequality has been shown to negatively affect individuals and society by fuelling, among other things, rising stress levels, drug abuse, gender and health issues, negative effects on family structures, reduced opportunities for children, crime rates and social polarisation (Wilkinson and Pickett 2010, McKnight and Nolan 2012). Academia and the institutions have, in the main, focused their attention on inequality’s pernicious effects on society and the economy as a whole. Their work has shown that high inequality negatively affects the extent and speed of poverty reduction at a given growth rate (Ravallion 2001), the length of growth spells (Berg et al. 2012), and political stability and governance (for example, through elite capture). Similarly, Piketty (2014) argues that increasing inequality threatens to undermine democratic values. Similar to environmental boundaries, there may

be social tipping points related to inequality (Lütkenhorst et al. 2014). Given that levels of income inequality are rising across the board (not only for emerging but also for developed economies; OECD 2011), the danger of reaching such social tipping points is real. Indeed, the World Economic Forum’s 2013 Global Risks Report – which gathers the opinions of more than 1,000 experts from industry, government, civil society and academia – identifies severe income disparity as the premier global risk factor (WEF 2013).

Income inequality also seems to be related to environmental sustainability (Haupt and Lawrence 2012): empirical evidence has identified a negative correlation between income inequality and performance in environmental indicators (among others, Baland et al. 2007, Mikkelsen et al. 2007, Holland et al. 2009, Andrich et al. 2010, Dorling 2010). Countries with high income inequality seem to perform worse in environmental indicators like, for example, waste production, biodiversity protection and water consumption. The causal mechanisms for this relationship have yet to be established.

The term ‘pro-poor growth’ is often used interchangeably with the term ‘inclusive growth’ (Habito 2009, Rauniyar and Kanbur 2010). However, while pro-poor growth focuses on the outcomes of growth, inclusive growth can be understood to also include the process of growth (Klasen 2010). Ali and Son (2007) conceptualise this aspect by focusing on the opportunities available to people living in poverty, while Ianchovichina and Lundstrom (2009) assert the need for inclusive growth to include a multitude of sectors and large parts of the labour force. Klasen, meanwhile, understands inclusive growth to be ‘growth that grants equal non-discriminatory access to growth [process dimension], plus disadvantage-reducing growth [outcome dimension]’ (Klasen 2010: 3).³ This conceptualisation is particularly useful for the purpose of this paper, as it can be readily applied to analyse the inclusiveness of green growth policies (see Section 3).

³ Klasen (2010) defines disadvantage-reducing growth as growth that reduces the disparities of disadvantaged groups compared to other groups in society (Klasen, 2010: 3).

B | Sustainability

The concept of sustainability represents one of the oldest attempts to reconcile environmental issues with economic growth and development. In 1972, the Club of Rome initiated a study on the 'Limits to Growth', which is regarded as one of the foundation stones of sustainability research (Meadows et al. 1972). In this study, a team of researchers built a comprehensive model of the world in which several complex systems interact. Among other things, the model simulated interrelations between population density, food resources, energy and environmental damage. Several scenarios developed on the basis of different policy options led to similar outcomes: a catastrophic decline in population and living standards within a century. If contemporary trends were to continue, the world would experience this decline by the middle of the 21st century, although it could be delayed up to the end of the 21st century through the extensive deployment of technology. Only a scenario combining early changes in behaviour, extensive use of technological solutions and comprehensive social policies would be able to stabilise key factors like population and food. The main message of *Limits to Growth* is that economic growth can only continue if it is radically decoupled from physical impacts like resource use and pollution (Randers 2010). More precisely, the human ecological footprint⁴ would have to return to a level that is in line with the Earth's carrying capacity and remain at or below that level thereafter, with or without economic growth. In practice, however, what has been happening is at best a relative decoupling: ecological footprints grow, but more slowly than the economy.

Towards the end of the 1970s, environmental economists like Herman Daly took up this concern and began to criticise the externalisation of environmental costs in growth accounting. Daly attributed the systematic underpricing

of natural resources to the societal dominance of the other factors of production: capital and labour. Without an effective 'lobby' to advocate for natural resources, they were deemed to be prone to overexploitation. Daly therefore promoted the concept of steady-state economics, implying that the economy should eventually reach a level of constant GDP to preserve limited natural resources (Daly 1977).

Another milestone was reached in 1987 when the World Commission on Environment and Development presented the Brundtland Report to the United Nations. This report advanced the understanding of sustainability by stating that 'environment' and 'development' are inseparable. It defined sustainable development as meeting 'the needs of the present without compromising the ability of future generations to meet their own needs'. As the authors of the report saw it, the limits to growth that sustainable development implies are not absolute; rather, they are set by the ability of the biosphere to absorb the effects of human activities and by the state of technology and social organisation.

In 1992, governments at the United Nations Conference on Environment and Development (UNCED) in Rio adopted the concept of sustainable development as a central principle in stating that 'Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature' (UNCED 1992b). The Agenda 21, adopted at the same conference, established the social, economic and environmental dimensions as the three pillars of sustainability (UNCED 1992a). It was assumed that synergies between the three dimensions are possible in principle but that there is also a risk of significant conflicts, and that political action is required to realise the synergies and manage the conflicts. The concept of sustainability has subsequently strongly influenced political discourse on development around, for example, the UN's Millennium Development Goals and Sustainable Development Goals.

4 In their 30-year update to the *Limits to Growth* report, Meadows et al. define an increase in the ecological footprint as an 'increase in resource extraction, pollution emission, land erosion, or biodiversity destruction, without a simultaneous reduction in other human impacts on nature' (Meadows et al. 2004: 289).

C I The green economy and (inclusive) green growth

Once established, the concept of sustainability was integrated into most countries' development strategies, such that the 1990s saw an upsurge in environmental policy and management (Strange and Bayley 2008, Jacobs 2013). However, these measures did not suffice to counter the effects of economic activity on the environment; in fact, most environmental indicators continued to worsen. Governments were failing to put the concept of sustainable development into practice and to deliver environmental protection with the impetus required. By creating the new notion of a 'green economy' or '(inclusive) green growth', several institutions – including UNEP, OECD and the World Bank – attempted to reinvigorate the move towards environmental sustainability (Jacobs 2013: 6). The institutions in question stress that these new concepts are not intended to replace the goal of sustainable development, but must instead be seen as a means to deliver it.

Initially referring only to growth in eco-industries,⁵ the concept of green growth has recently magnified its scope to include the entire economic structure (Jänicke 2012). Similar to sustainability, green growth is based on the understanding that a fundamental transformation of the economy is required to protect the natural resource basis of human well-being. There is, however, no commonly agreed definition of green growth. While all of the various definitions proposed by the international institutions agree that the environmental impacts of economic growth need to be taken into consideration, they differ in terms of how stringent they require the environmental protection to be and how explicitly they emphasise the social aspects of green growth.

OECD's 2012 definition of green growth sets stringent requirements for environmental protection, but does not explicitly refer to social aspects like equity. OECD understands green growth as

'fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies. To do this it must catalyse investment and innovation which will underpin sustained growth and give rise to new economic opportunities' (OECD 2012: 8).

The requirement that green growth must ensure natural assets maintain the ability to provide the basis for human wellbeing is a clear call for the human ecological footprint to be reduced to sustainable levels, in line with the *Limits to Growth* report. Other agencies avoid this kind of benchmark for the 'green' dimension of green growth, opting instead for phrases like 'significantly reduced environmental risks', 'minimised pollution' or 'growth that helps green economies'. That said, they do tend to focus more strongly on the social aspects.

UNEP explicitly includes social equity in its definition of the green economy (GE) – by which it means fully actualised green growth – describing a Green Economy as

'one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. A GE is characterized by substantially increased investments in economic sectors that build on and enhance the Earth's natural capital or reduce ecological scarcities and environmental risks. These sectors include renewable energy, low-carbon transport, energy-efficient buildings, clean technologies, improved waste management, improved freshwater provision, sustainable agriculture and forest management, and sustainable fisheries. These investments are driven or supported by national policy reforms and the development of international policy and market infrastructure' (UNEP 2010: 3).

⁵ As defined in 1999 by OECD and Eurostat in *The Environmental Goods and Services Industry: Manual for Data Collection and Analysis*, eco-industries are 'activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes technologies, products and services that reduce environmental risk and minimize pollution and resources'.

It further states that '[i]n its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive' (UNEP 2014).

The World Bank defines green growth as growth that is:

- 'efficient in its use of natural resources,
- clean in that it minimizes pollution and environmental impacts, and
- resilient in that it accounts for natural hazards and the role of environmental management and natural capital in preventing physical disasters' (World Bank 2012: 30).

It also calls for this growth to be inclusive, but introduces the idea of potential trade-offs between green growth and inclusiveness by acknowledging that 'we cannot presume that green growth is inherently inclusive' (World Bank 2012: xi). It argues that the outcomes of green growth policies are likely to be good for people living in poverty, but that, nonetheless, these policies should be explicitly designed to maximise benefits and minimise costs to the poor. However, the World Bank does not go into more detail and, instead, concentrates on the management of trade-offs between the environmental and economic dimensions of sustainability. OECD adds that '[w]hen designed to reduce poverty and manage near term trade-offs, green growth can help developing countries achieve sustainable development' (OECD 2013: 2).

In a later publication, the African Development Bank (AfDB), OECD, UN and World Bank define inclusive green growth as

'growth that not only helps green economies, but also helps move towards sustainable development by ensuring environmental sustainability contributes to, or at least does not come at the expense of, social progress' (AfDB et al. 2013: 3).

This reinforced emphasis on social progress may reflect the concern expressed by civil society and developing-

country governments regarding the negative effects a green growth approach can have on people living in poverty – an issue that was vigorously raised at the Rio+20 conference in 2012 (Benson et al. 2014).

All of the above definitions go a long way in helping to delineate green and inclusive growth; however, many important aspects remain vague. As such, they are not suitable for guiding policymakers in their work to assess the social aspects of green growth policies. Becoming more precise implies having to take decisions on the scope of 'greenness' (for example, which environmental impacts to include, and whether or not to set a benchmark related to the Earth's carrying capacity) and on the intensity of inclusiveness (are we avoiding harming people living in poverty, benefiting them or disproportionately benefiting them?). These decisions can be politically contested and, given their normative nature, there is no single best solution. Ultimately, they will be shaped by political considerations, local context and development priorities.

Drawing on the above definitions, this paper proposes a normative 'gold standard' definition of green and inclusive growth that very stringently specifies both the environmental and social dimensions. Chapter 3 will explain how policymakers can use this definition to assess how potential impacts arising from green growth policies will affect people living in poverty. In this way, it seeks to address the concerns of many developing-country governments that green growth policies may have negative social impacts. While this 'gold standard' definition should henceforth constitute the aspiration of green and inclusive growth policies, it may prove challenging to realise in practice. For this reason, a less stringent 'minimum requirement' definition is also provided.

The 'gold standard' definition of green and inclusive growth reads as follows:

Green and inclusive growth is that which allows for a reduction of humanity's ecological footprint to a level that is in line with the Earth's carrying capacity, while disproportionately improving the opportunities of people living in poverty to partake in the process and outcomes of economic growth, thereby lowering inequality.



This definition relates to the environmental sustainability requirement of *Limits to Growth* and to the concepts of planetary boundaries (Rockström et al. 2009) and planetary guard rails (Schellnhuber et al. 2011) which stipulate that humanity must not transgress certain thresholds of environmental damage lest it causes unacceptable environmental change. In its social dimension, it relates to the pro-poor definition coined by Klasen (2010) and explicitly includes equality as a goal of inclusive green growth. In doing so, it relates to Kate Raworth's 'doughnut model', which describes a safe and just operating space for humanity within planetary and social boundaries (Raworth 2012).

If this is not possible to implement, then there is the option of the minimum-requirement definition:

Green and inclusive growth is that which allows for a reduction of humanity's ecological footprint and improves, or at least does not harm, the opportunities of people living in poverty to partake in the process and outcomes of economic growth.

Although the definition loses much of its stringency, it is more realistic to implement. Its environmental dimension needs to be seen as a process prescription that, in a transitional period, allows the economy to exceed sustainable levels of natural resource use and pollution, while aspiring to realise a footprint in line with planetary boundaries. In this way, economic growth would become increasingly decoupled from natural resource use. The social dimension would not necessitate progress in reducing inequality or poverty, but would at least protect people living in poverty from harm. The two definitions should not be seen as either/or options, but rather as an aspiration for and a lower limit to the requirements of green and inclusive growth.

3. Inclusive green growth: a checklist for assessing synergies and trade-offs

Since the inception of the green growth concept, agencies such as UNEP have stressed the potential for achieving synergies with social development outcomes (Benson et al. 2014). However, the evolution of the discourse on green growth during the Rio+20 conference, shaped in large part by non-governmental organisations and developing-country governments, and the subsequent adaptations of green growth definitions to include a stronger focus on inclusiveness are evidence of the widely held concern that to deliver green growth and achieve social development goals trade-offs may be required or inevitable. In practice, it might not be possible to achieve both goals simultaneously. Indeed, the effects of green growth policies – for example, energy price rises imposed to offset the cost of supporting renewable energy – can have negative income effects on people living in poverty.

General guidance on the patterns of synergies and trade-offs that are possible between the environmental and economic pillars of sustainability is difficult to obtain, and guidance on those possible between the environmental and social pillars even more so (Dercon 2014a). The complexity of environmental and social challenges to be addressed by green and inclusive growth policies and the surfeit of policies and measures attempting to meet them preclude a general overview of this topic. However, by combining the concepts of inclusive growth and green growth, it becomes possible to develop a checklist against which policymakers can assess the social impacts of green growth policy measures and, consequently, address concerns related to the achievement of social development outcomes.

To develop this checklist, it is necessary to (i) have a systematic approach in place to assess how green growth policies affect inclusiveness and (ii) specify exactly what is meant by ‘green growth policies’, as explained below.

(i) The systematic approach required to assess how green growth policies affect inclusiveness

As suggested by Klasen (2010), discussed in Section 2 and included in the above definitions, people living in poverty may be affected by policies that impact on their ability to participate in growth (growth process dimension) and on the distribution of growth’s benefits (growth outcome dimension). When conducting the analysis, it is of less importance which effects of green growth policies on inclusiveness are assigned to which specific dimension. Instead, it is more important to think in terms of these process and outcome dimensions, as this will facilitate the development of a comprehensive set of analytical questions and help to ensure that no relevant effects are omitted.

The ability of people living in poverty to participate in the growth process (process dimension) can be assessed by asking the following questions:

1. **Sectors:** Does the green growth policy affect sectors where an above-average share of people living in poverty are economically active? (For example, agriculture or the informal sector.)
2. **Employment and production factors:** Does the green growth policy affect employment opportunities and production factors that people living in poverty depend upon? (For example, low-skilled labour, health, education and financial, physical, social and natural capital [Hallegatte et al. 2014: 6].) This aspect needs to factor in both the ‘green’ employment opportunities created and the ‘brown’ employment opportunities lost (Bowen 2014).

The distribution of growth benefits (outcome dimension) can be assessed by asking the following questions:

3. **Income:** Does the green growth policy affect the income of people living in poverty?
4. **Inequality:** Does the green growth policy affect income distribution within the society?
5. **Access:** Does the green growth policy affect access to goods or services by people living in poverty? (For example, to food, energy, water or finance.)
6. **Regions:** Does the green growth policy affect regions with an above-average share of people living in poverty? (For example, rural areas or urban slums.)

Here, the question of inequality goes beyond the narrower focus on poverty reduction to include distribution effects on all groups of society. This question may require normative decisions to be taken on, for example, the desirability of green growth policies that enable the economic growth of all income groups, but allow poor people's incomes to grow at a slower pace, thereby increasing inequality.

This list of questions should not necessarily be seen as all-encompassing. Depending on the national context, additional factors may need to be considered when assessing the social effects of green growth policies, such as a focus on specific disadvantaged groups (e.g. women, children, people with disabilities, ethnic minorities or indigenous people). Conversely, it may not be necessary to assess all of the above questions for every green growth policy.

(ii) Specifying what is meant by 'green growth policies'

To identify the list of policies needing particular scrutiny, it is necessary to specify what is meant by 'green growth policies'. Dercon (2014b) groups green growth policies into the categories of (a) pricing environmental externalities or, where this is not possible, regulating them, (b) promoting investment in clean technologies and (c) making growth more resilient to environmental shocks. Similarly, Hallegatte et al. (2012) differentiate between (a) pricing externalities, (b) complementary policies where pricing is not possible or insufficient and (c) activist policies to phase in green technologies.

The common ground shared by these authors is, primarily, that green growth policies should seek to correct prices where environmental externalities lead to suboptimal market outcomes. However, they also acknowledge that pricing alone may be insufficient to effect change or altogether impossible to implement. As such, price correction needs to be complemented by other measures like regulation. The authors also posit that, if clean technologies are to be introduced, specific support is required, as this will help break down established paradigms and accelerate the green transformation. Referring to the closely related area of green industrial policy, Lütkenhorst et al. (2014) call attention to another important area of green growth policy: the phasing out of polluting technologies. To do this often implies threatening the market position of established incumbents, which means the process comes laden with political-economy-related challenges. It may also entail job losses, which commonly result in negative social impacts. However, given the urgency of our present environmental challenges, green growth policies need to include measures to address polluting technologies even before their environmentally friendly substitutes become competitive.

Manifold policies can be considered to be green, and how they impact on social development goals and on people living in poverty heavily depends on the details of policy design. Not all factors listed in the above checklist are necessarily relevant for all policies, but the list may help to bring to light consequences that might otherwise have been overlooked. The following case studies in boxes 1 to 3 illustrate the use of the checklist with specific policy examples.



*Box 1:
Poverty reduction
through microfinance
for solar home
systems?*



*Box 2:
Do carbon taxes
hurt people
living in poverty?*



*Box 3:
Waste management
and the informal sector –
closing the resource loop*

Box 1: Poverty reduction through microfinance for solar home systems?

Rural areas in developing countries often lack access to energy. Expanding the national power grid to remote areas is rarely financially viable due to challenges related to physical access and low settlement density. Lack of access to affordable finance for modern forms of energy can pose a significant barrier to development, particularly in rural areas (Pode 2013). The microfinance for solar home systems (SHS) approach has shown to be an effective instrument to expand rural electrification by helping meet the high initial fixed costs for SHS acquisition. SHS combine green and social development objectives by generating clean electricity and improving the livelihoods of rural populations. The adoption of SHS has been demonstrated to have positive impacts on education, health, information, communication, working conditions, perception of security and social activity (Pode 2013).

The Government of Bangladesh has introduced a programme to promote the adoption of SHS with the aim of greening the energy sector and promoting rural development. The Government provides grants to the Infrastructure Development Company Limited (IDCOL), which the latter uses to provide soft loans to partner organisations, such as Grameen Shakti (Pode 2013). As partner organisation, Grameen Shakti provides microcredits to households and small businesses for purchasing SHS. Grameen Shakti has also set up 46 Grameen Technology Centres, which mainly employ people from local rural areas, to provide after-sales support for and manufacturing of SHS accessories (GGBP 2014b).

1. Sectors: Grameen Shakti microfinance contributed to the emergence of a new green sector in rural areas of Bangladesh by producing components for solar home systems locally and by creating technical maintenance centres for solar home systems (GGBP 2014b). While SHS production is not per se a sector where people living in poverty are disproportionately active, the Grameen Technology Centres specifically target these sections of the population, particularly women, and enable new small businesses to emerge (GGBP 2014b).

2. Employment and production factors: Low-skilled workers are being trained and employed in the renewable energy sector, e.g. in production and maintenance. The domestic production of components for SHS, such as charge controllers and solar lamps, generates employment for rural technicians. By conducting trainings in photovoltaic maintenance, the programme also contributes to building the skills of workers and to improving the production factor of labour (GGBP 2014b). SHS also contribute to better health conditions of workers by reducing indoor air pollution at home (Pode 2013). Furthermore, SHS offer the potential of using electricity as a production factor in rural areas. However, Laufer and Schäfer (2011) show that in Sri Lanka, SHS did not enhance productivity in agriculture or other productive sectors due to the insufficient electricity capacity of SHS.

3. Income: By creating opportunities for establishing production and maintenance centres and for businesses, for example by being able to provide lighting for shops during evening hours and thereby extend opening hours, the programme generates employment opportunities for the rural population and increases income (GGBP 2014). Moreover, the adoption of SHS reduces household consumption of other energy carriers, such as kerosene, and the dependency on rechargeable batteries. In Bangladesh the proportion of income spent on energy was reduced by 20-30%, thereby increasing household budgets for purchasing non-energy goods and services (Komatsu et al. 2011).

4. Access: Only one third of rural households in Bangladesh are connected to the national power grid (Rahman and Ahmad 2013). In light of the low probability that these households will be connected to the national power grid in the future, the microcredits offered by Grameen Shakti enable people living in poverty and small businesses in rural areas to access modern forms of energy. This improves livelihoods by enabling lighting and access to internet and telecommunication technologies through the charging of mobile phones and telephone booth electrification (GGBP 2014b).

5. Regions: As a result of the newly-established SHS industry, new businesses and service centres for photovoltaic maintenance and SHS production emerged in rural areas of Bangladesh. On the consumption side, clean electricity is enabling the substitution of more expensive and unhealthy forms of energy. Overall, Grameen Shakti has contributed to the development of rural areas (GGBP 2014b).

Box 2: Do carbon taxes hurt people living in poverty?

One of the most obvious measures to internalise environmental costs is to require the polluter to bear the costs of pollution damage or pollution control ('polluter pays principle'). One way of doing this is by levying taxes on pollution — for example by imposing carbon taxes. The revenues raised can be used to alleviate the tax burden on socially desirable activities, such as labour, in line with the principle of 'taxing bads, not goods'. This would generate a double dividend of environmental protection and the support of social aims (Pearce 1991).

However, given that tax revenues ultimately form part of the national budget, one should not assume that they will get earmarked for specific purposes. Depending on how it is designed, the tax will have distributional effects that may negatively or positively impact on people living in poverty.

1. Employment and production factors: Theoretically, a carbon tax can stimulate employment when the tax revenues are used to reduce non-wage labour costs, so that labour becomes relatively cheap and capital relatively expensive (Jacob et al. 2015). In South Africa unemployment is very high⁶. A fiscally neutral mix of instruments can positively affect employment in South Africa, particularly in capital and energy-intensive industries that shift to more labour-intensive and less energy-intensive production patterns in the process of a structural change caused by a carbon tax (Winkler and Marquard 2009). However, modelling exercises also show a potential net negative employment effect. For the introduction of a lump-sum carbon tax of USD 12.72 per metric tonne in South Africa, Devarajan et al. (2009) calculate a 1 to 15% decrease in output of energy-intensive sectors such as iron and steel, electricity generation, metals, coal mining and refined petroleum, and an increase in output of sectors such as wood and agriculture (between 1 and 3%) (Devarajan et al. 2009). While a carbon tax stimulates investments in green technologies and hence fosters the emergence of green jobs for high-skilled workers, structural unemployment of less-skilled workers in South Africa can offset this positive employment effect (Devarajan et al. 2009). For example, Devarajan et al. (2009) calculate a decline in employment rates for low-skilled and medium-skilled workers of 0.96% and 1.33%, respectively⁷. They attribute this, however, to the inflexibility of labour rather than to the cost of the carbon tax itself.

2. Income: It is expected that if carbon taxes end up increasing the price of goods or services consumed disproportionately by people living in poverty (for example fuel or transport) there will be a negative income effect. On the other hand, there might be a net positive impact if tax revenues are used to alleviate poverty, for example through increased social spending. Based on a CGE⁸ modelling exercise, Winkler and Marquard (2009) argue that negative effects on poverty indeed need to be, and can be, mitigated if a carbon tax is to be introduced in South Africa. Devarajan et al. (2009) calculate a decline in income across all income groups, except for the richest 1.25% of households. Winkler and Marquard therefore suggest using revenues from wealthier groups to cross-subsidise electricity for people living in poverty, thereby increasing and broadening their use of the modern energy supply, or to use revenues to enhance public transport options.

3. Inequality: Depending on how they are designed, taxes can have a regressive effect — in other words they impose a relatively greater burden on low-income households than on high-income households and, in doing so, contribute to inequality. Their effects can also be progressive, meaning they reduce inequality, or be neutral (i.e. proportional). Studies have shown that environmental taxes can have a regressive effect, burdening low-income households more than high-income households (see, for example, Liang and Wei 2012: for China), but also have a progressive effect (see, for example, Yusuf and Resosudarmo 2007: for Indonesia) depending on the specific country context. In South Africa the introduction of a carbon tax is likely to increase income inequality (Caetano and Thurlow 2014, Devarajan et al. 2009). Therefore, Caetano and Thurlow (2014) advocate the introduction of a higher carbon tax along with a revenue recycling mechanism that fosters welfare.

The studies show that the overall effects on poverty, distribution and competitiveness greatly depend on the use of the revenues generated. This is evidenced in modelling work, such as that undertaken by Metcalf (1999), which shows how cross-subsidisation of goods and services or reductions of other taxes generate a net neutral distributional effect. If revenues from carbon taxation are, for example, invested in food price reduction, a triple dividend (positive environmental impacts, GDP and employment effects, and poverty reduction) could be created for South Africa (Van Heerden et al. 2005).

⁶ In 2013, 22.3% of the male and 28% of the female South African labour force was unemployed (World Bank Indicators 2015).

⁷ Devarajan et al (2009) compare different tax schemes in a reference and a rigid case (tax per metric ton equals USD 12.72 and USD 21.84, respectively; the elasticity of substitution among energy inputs and between energy and capital is higher in the rigid case). Given estimates refer to the reference case.

⁸ CGE = Computable General Equilibrium.

Box 3: Waste management and the informal sector — closing the resource loop

Solid waste management is an integral part of the green economy (UNEP: 288 ff.). In developed economies, waste management is, in the main, a formalised and high-tech activity — for example, in Germany, all communal waste is collected and treated (recycled, incinerated or composted). In most developing countries, however, the situation is different: the World Bank estimates that less than 50% of solid waste is collected in low-income countries. Most of the waste is collected by informal workers, often under conditions that do not conform with the concept of ‘decent work’ defined by the International Labour Organization (ILO).⁹ Insufficient waste management has a major environmental impact because untreated waste leads to soil and water contamination and hygiene issues. Furthermore, the decomposition of organic matter in landfills produces greenhouse gas emissions that could have been avoided by recycling and composting (GIZ 2011).

While sustainable waste management in low income countries plays a vital part in moving towards a green economy, approaches need to address the fact that the sector relies largely on informal waste collectors. As shown in the case of Belo Horizonte, Brazil, waste management schemes that actively include informal waste-picker communities can bring about significant social, economic and environmental improvements (World Bank 2013). In 1993, the municipality of Belo Horizonte began implementing an integrated solid waste management model. This model focused on promoting waste segregation in order to reduce environmental impacts, generate social benefits for the community — such as improved working conditions for waste-pickers and improved health for the population through expanded domestic waste collection services — and economic profits, e.g. by re-using waste for energy production (GGBP 2014a, Madeiros n.d., WIEGO 2011). The programme integrates informal waste pickers in the formal solid waste management system by providing financial, administrative and educational support to cooperatives of informal recyclers who conduct door-to-door waste picking for the municipality (WIEGO 2011). By formalising the employment situation of these informal workers, the municipality prevented the new system from potentially eliminating jobs of people living in poverty and improved working conditions of waste pickers. Such policy approaches, developed in cooperation with groups of informal workers, have been shown to be particularly effective (Benson et al. 2014). Helping groups to self-organise into cooperatives, small enterprises and networks is the first step towards improving these groups’ negotiating power and efficiency (GIZ 2011, World Bank 2013).

1. Sectors: The informal waste sector provides an income for at least 15 million people worldwide. Many workers in this sector belong to disadvantaged groups, such as women, children, elderly and disabled people. Brazil counts approximately 230,000 waste pickers, only about 12,000 of whom have a formal contract (Dias 2011). By integrating informal workers into the municipal integrated solid waste management system in Belo Horizonte, the formal waste management sector grows while the informal waste management sector shrinks.

2. Employment and production factors: Waste collection can reduce health hazards and protect natural capital. Children in Brazilian urban slums without solid waste management showed a 40% higher possibility of contracting health problems such as diarrhoea, parasites and dermatological disorders compared to children who benefit from solid waste management (Catapreta and Heller 1999). Labour, health and natural capital are all assets that people living in poverty disproportionately depend upon for their livelihoods. However, informal waste collection can also put workers’ health at risk. For this reason, Belo Horizonte in Brazil provides waste pickers with protective equipment like gloves (World Bank 2013). Informal waste collection is highly labour intensive, low-skilled work. Besides direct waste picking, additional employment has been created in Belo Horizonte by the affiliated Community Cleaner Programme, which creates municipal cleaning jobs, and the Food Programme, which collects and distributes safe but unsellable food, e.g. to day-care facilities and retirement homes (WIEGO 2011). The Community Cleaner Programme creates employment opportunities, with priority given to residents of low-income settlements. The Belo Horizonte solid waste management programme demonstrates how a programme’s scope can be extended from environmental protection to encompass social inclusion by involving not only informal workers but also other urban people living in poverty (WIEGO 2011).

⁹ According to ILO, ‘[d]ecent work sums up the aspirations of people in their working lives. It involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men.’ (ILO 2014)

3. **Income:** If the working conditions of informal waste collectors can be improved, or if new decent jobs are created through proper waste management, this can provide new and enhanced income opportunities for people living in poverty. A large proportion of waste pickers in Belo Horizonte earn at least the minimum wage of USD 321 per month (World Bank 2013).

4. **Regions:** Waste management is particularly important in urban regions with a high population density and a high proportion of people living in poverty. In the case of Belo Horizonte, informal waste pickers live in urban slums that are difficult to access with formal waste management schemes (UN HABITAT, 2010). The programme addresses this challenge by including informal waste pickers in the programme, and promotes development in regions with an above-average share of people living in poverty, specifically urban slums. In addition, the programme contributes significantly to the city's cleanliness (Nas and Jaffe 2004).



4. Managing the synergies and trade-offs

In many countries, a transition towards inclusive green growth will require deep structural changes. Steering such changes is a complex task and one that requires a strategic and long-term approach. Developing a long-term vision for change and embedding it in the country's national development strategy is the first step in this journey. The identification of a viable vision for inclusive green growth crucially depends on the consideration of synergies and trade-offs between the economic, social and environmental dimensions of sustainability. Identifying these interrelations requires evidence on the social, economic and environmental 'hotspots' (i.e., factors that are either particularly advantageous or problematic) of a country, and on the likely impacts wrought by policy measures on these three dimensions. This evidence will guide the subsequent process to set goals, target sectors and choose and design instruments. It will also inform the implementation and evaluation stages, after which the initial goals, targets and instruments can be adapted, if required. A number of toolboxes and guides exist to help policymakers carry out evidence-based decision-making (see, for example, ILO 2011 and AfDB et al. 2013), but few explicitly address interactions between the environmental, social and economic dimensions (an exception being the UNIDO Toolbox, published by GIZ in 2015). As such, more work is needed in this area.

Following the logic of the above checklist, there are six core areas that policymakers need to consider when designing inclusive green growth policies:

- **Exercising particular caution when a green growth policy targets sectors with an above-average share of people living in poverty.** Positive or negative effects on low-income households may in this case be particularly strong – for example, when a reform targets the agricultural sector.
- **Protecting and improving the access of people living in poverty to employment opportunities and production factors.** Many environmental policies are designed to improve or protect natural resources and/or reduce pollution. Since people living in poverty disproportionately depend on natural resources for their employment and income and are least able to protect themselves from environmental pollution, there are clear synergies to be found in this area (Bowen 2014). However, the distributional effects of such policies need to be considered and negative effects on low-income households avoided (see below). Furthermore, when policies seek to protect natural resources from overuse and it is mainly people living in poverty who are responsible for this overuse, appropriate compensation mechanisms must be found to ensure that these people's livelihoods are not threatened.
- **Assessing income effects and protecting people living in poverty.** Any transformative policy will have distributional effects. When a green subsidy is created, the cost needs to be covered. When an environmental regulation is introduced, there will be winners and losers. This being the case, policymakers need to ensure that the income situation of people living in poverty is improved after policy implementation (or, if adopting the minimum requirement definition of inclusive green growth, at least not worsened).
- **Assessing effects on inequality.** It is important to assess not only the absolute impact of green growth policies on the incomes of people living in poverty, but also how the policies affect these people's incomes relative to other groups in the population.

■ *Designing inclusive green growth policies to enhance the access of people living in poverty to goods and services.* Many people living in poverty lack access to basic goods and services. Policies that create, protect or enhance this access and, at the same time, protect the environment can be considered green and inclusive – for example, electrification with renewable energies or sustainable water management. However, there may also be trade-offs – for example, when establishing nature preservation areas it may be possible to provide poor people with access to game animals.

■ *Considering regional effects and maximising positive (or minimising negative) impacts on disadvantaged regions.* Green technologies that use new resources can offer new opportunities for economically disadvantaged regions that are, for example, endowed with high wind or solar energy generation potential. Tapping into these resources can certainly create economic opportunities for residents of these areas. However, green policies can also further disadvantage structurally weak areas, as demonstrated by Liang and Wei (2012) in their example of the Chinese carbon tax scheme that could widen the income gap between rural and urban areas.

The relative weighting of environmental, social and economic aims with respect to development objectives will differ between countries, as will the emphasis placed on the environmental or social aspects of green and inclusive growth. For some countries, the priority might be identifying social hotspots, such as extreme inequality or persistent absolute poverty, while other countries may wish to tackle grave environmental challenges, such as air and water pollution or desertification. These national hotspots

will define the starting point of strategic policymaking, with minimum requirements for the other dimensions of sustainability serving as guard rails. Identifying hotspots and appropriate strategies to tackle them requires evidence; however, particularly in developing countries, this is often unavailable. Further research is therefore needed into, among other areas:

- appropriate and easy-to-use tools for identifying national environmental and social hotspots;
- the effects of specific green growth policies on the informal sector;
- the net employment effects of specific green growth policies – if possible, disaggregated by skill levels;
- the design features that specific green growth policies need to deliver a progressive income effect;
- the effects of specific green growth policies on regional distribution.

Alongside the knowledge-based, rational choice of green and inclusive growth policies, the government needs to mobilise societal support to ensure implementation is successful. To this end, policymakers need to cooperate with stakeholders, explore the policy space and understand the opportunities and risks. In so doing, they need to go beyond the national context: the global economy and international institutions can be supportive as well as obstructive factors, as can international actors like foreign investors and donors. It is important to align these actors with the transformative strategy and to draw on international support to create political impetus and ease capacity and funding constraints.

5. Bibliography

- A** AfDB (2013). African Development Report 2012. Towards green growth in Africa. Tunis: AfDB. Retrieved on 15 December 2014 from http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/African_Development_Report_2012.pdf.
- AfDB, OECD, UN and World Bank (2013). A toolkit of policy options to support inclusive green growth. Revised version of the original submission to the G20 Development Working Group. Retrieved on 24 September 2014 from http://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/IGG-ToolkitAfDB-OECD-UN-WB-revised_July_2013.pdf.
- Ali, I. and H. H. Son (2007). Measuring inclusive growth. *Asian Development Review* 24(1): 11-31.
- Andrich, M. A., J. Imberger and E. R. Oxburgh (2010). Raising utility and lowering risk through adaptive sustainability: Society and wealth inequity in Western Australia. *Journal of Sustainable Development* 3(3): 14-35.
- Arndt, C., K. Pauw and J. Thurlow (2014). The economywide impacts and risks of Malawi's farm input subsidy programme. Helsinki: UNU-WIDER. WIDER Working Paper 2014/099. Retrieved on 15 December 2014 from http://www.wider.unu.edu/publications/working-papers/2014/en_GB/wp2014-099/.
- B** Baland, J.-M., P. Bardan and S. Bowles (2007). Inequality, cooperation, and environmental sustainability. Princeton: Princeton University Press.
- Benson, E., S. Best, E. d. Pozo-Vergnes, B. Garside, E. Y. Mohammed, S. Panhuysen, G. Piras, B. Vorley, A. Walnycki and E. Wilson (2014). Informal and green? The forgotten voice in the transition to a green economy. London: IIED. Discussion Paper. Retrieved on 6 November 2014 from <http://pubs.iied.org/pdfs/16566IIED.pdf>.
- Berg, A., J. Ostry and J. Zettelmeyer (2012). What makes growth sustained? *Journal of Development Economics* 98(2): 149-166.
- Bowen, A. (2014). Issue note session 2, 'Inclusive labour markets for green growth', Green Growth and Sustainable Development Forum 2014. Paris: OECD. Retrieved 17 March 2015, from http://www.oecd.org/greengrowth/Issue%20Note%20Session%20Two_final.pdf.
- C** Caetano, T. and J. Thurlow (2014). The Socio-economic implications of renewable energy and low carbon trajectories in South Africa. In Jooste, M. et al. (2014). Internalising mitigation activities into the development priorities and approaches of developing countries. Cape Town: ERC, MAPS, Centre for Policy Research: 90-101.
- Catapreta, C.A.A. and L. Heller (1999). Associação entre coleta de resíduos sólidos domiciliares e saúde, Belo Horizonte (MG), Brasil. *Revista Panam Salud Publica/Pan Am J Public Health* 5(2): 88-96.
- D** Daly, H. (1977). Steady-state economics: The political economy of bio-physical equilibrium and moral growth. San Francisco: W.H. Freeman and Co.
- Denning, G., P. Kabambe, P. Sanchez, A. Malik, R. Flor, R. Harawa, P. Nkhoma, C. Zamba, C. Banda, C. Magombo, M. Keating, J. Wangila and J. Sachs (2009). Input subsidies to improve smallholder maize productivity in Malawi: Toward an African green revolution. *PLoS Biology* 7(1): 2-10.

Dercon, S. (2014a). Climate change, green growth and aid allocation to poor countries. Oxford: University of Oxford. CSAE Working Paper WPS/2014-24. Retrieved on 23 September 2014 from <http://www.csae.ox.ac.uk/workingpapers/pdfs/csae-wps-2014-24.pdf>.

Dercon, S. (2014b). Is green growth good for the poor? Washington, D.C.: World Bank. Policy Research Working Paper 6936. Retrieved on 23 September 2014 from <https://openknowledge.worldbank.org/bitstream/handle/10986/18822/WPS6936.pdf?sequence=1>.

Devarajan, S., D.S. Go, S. Robinson and K. Thierfelder (2009). Tax Policy to Reduce Carbon Emissions in South Africa. Washington, DC: The World Bank. Policy Research Working Paper 4933.

Dias, S. M. (2011). Statistics on waste pickers in Brazil. Cambridge: WIEGO. Wiego Statistical Brief 2. Retrieved on 5 March 2015 from http://wiego.org/sites/wiego.org/files/publications/files/Dias_WIEGO_SB2.pdf.

Dorling, D. (2010). Is more equal more green? London: University of Sheffield.

Duclos, J.-Y. (2008). What is “pro-poor”? Social Choice and Welfare 32(1): 37-58.

G GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH) (2011). Recovering resources, creating opportunities: Integrating the informal sector into solid waste management. Eschborn: GIZ. Retrieved on 26 September 2014 from <http://www.giz.de/de/downloads/giz2011-en-recycling-partnerships-informal-sector-final-report.pdf>.

Global Footprint Network (2012). World footprint: Do we fit on the planet? Retrieved on 18 May 2013 from http://www.footprintnetwork.org/en/index.php/GFN/page/world_footprint.

GGBP (Green Growth Best Practices) (2014a). Waste and Recycling in Belo Horizonte. Retrieved 23 March 2015, from <http://www.ggbp.org/case-studies/brazil/waste-and-recycling-belo-horizonte>.

GGBP (2014b). Microfinance for Solar Home Systems. Retrieved 23 March 2015, from <http://www.ggbp.org/case-studies/bangladesh/microfinance-solar-home-systems>.

Grosse, M., K. Harttgen and S. Klasen (2008). Measuring pro-poor growth in non-income dimensions. World Development 36(6): 1021-1047.

H Habito, C. F. (2009). Patterns of inclusive growth in developing Asia: Insights from an enhanced growth-poverty elasticity analysis. Tokyo: Asian Development Bank Institute. ADBI Working Paper Series 145. Retrieved on 18 June 2015 from <http://adbi.adb.org/files/2009.08.12.wp145.patterns.inclusive.growth.dev.asia.pdf>.

Hallegatte, S., M. Bangalore, L. Bonzanigo, M. Fay, U. Narloch, J. Rozenberg and A. Vogt-Schilb (2014). Climate change and poverty. An analytical framework. Washington, DC: World Bank. Policy Research Working Paper 7126. Retrieved on 18 June 2015 from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2531160.

Hallegatte, S., G. Heal, M. Fay and D. Treguer (2012). From growth to green growth — a framework. Cambridge: National Bureau of Economic Research. NBER Working Paper 17841. Retrieved on 23 September 2014 from <http://www.nber.org/papers/w17841>.

- Haupt, J. and C. Lawrence (2012). 'Unexpected connections: Income inequality and environmental degradation'. *Shaping Tomorrow's World*, 13 February 2012. Retrieved on 4 November 2014 from http://www.shapingtomorrowworld.org/hauptInequality.html#_ENREF_53
- Holland, T. G., G. D. Peterson and A. Gonzalez (2009). A cross-national analysis of how economic inequality predicts biodiversity loss. *Conservation Biology* 23(5): 1304-1313.
- I** Ianchovichina, E. and S. Lundstrom (2009). *Inclusive growth analytics: Framework and application*. Washington, DC: World Bank. Policy Research Working Paper 4851. Retrieved on 24 September 2014 from <http://library1.nida.ac.th/worldbankf/fulltext/wps04851.pdf>
- IFAD (2011). *Enabling poor rural people to overcome poverty in Malawi*. Rome: IFAD. Country Factsheet. Retrieved on 26 September 2014 from <http://www.ifad.org/operations/projects/regions/Pf/factsheets/malawi.pdf>
- ILO (2011). *Assessing green jobs potential in developing countries. A practitioner's guide*. Geneva: ILO. Retrieved on 29 September 2014 from http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_153458.pdf
- ILO. (2014). 'Decent work'. Retrieved on 29 September 2014 from <http://www.ilo.org/global/topics/decent-work/lang--it/index.htm>
- IPCC (2014). *Summary for policymakers. Climate change 2014, mitigation of climate change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. O. Edenhofer, R. Pichs-Madruga, Y. Sokona et al. Cambridge: Cambridge University Press.
- J** Jacob, K., R. Quitzow and H. Bär (2015). *Green Jobs: Impacts of a Green Economy on Employment*. Eschborn: GIZ.
- Jacobs, M. (2013). *Green growth. Handbook of global climate and environmental policy*. R. Falkner. Oxford: Wiley Blackwell.
- Jänicke, M. (2012). 'Green growth': From a growing eco-industry to economic sustainability. *Energy Policy* 48: 13-21.
- K** Kakwani, N. and E. Pernia (2000). What is pro-poor growth? *Asian Development Review of Economic Studies* 18(1): 1-16.
- Klasen, S. (2010). *Measuring and monitoring inclusive growth: Multiple definitions, open questions, and some constructive proposals*. Manila: ADB. ADB Sustainable Development Working Paper Series 12. Retrieved on 24 September 2014 from <http://www.adb.org/sites/default/files/pub/2010/ADB-WP12-measuring-inclusive-growth.pdf>
- Komatsu, S., S. Kaneko and P.P. Ghosh (2011). Are micro-benefits negligible? The implications of the rapid expansion of Solar Home Systems (SHS) in rural Bangladesh for sustainable development. *Energy Policy* 39: 4022-4031.
- L** Laufer, D. and M. Schäfer (2011). The implementation of Solar Home Systems as a poverty reduction strategy – A case study in Sri Lanka. *Energy for Sustainable Development* 15: 330-336.
- Liang, Q.-M. and Y.-M. Wei (2012). Distributional impacts of taxing carbon in China: Results from the CEEPA model. *Applied Energy* 92(0): 545-551.

Lütkenhorst, W., T. Altenburg, A. Pegels and G. Vidican (2014). Green industrial policy: Managing transformation under uncertainty. Bonn: German Development Institute/Deutsches Institut für Entwicklungspolitik (DIE). Discussion Paper 28/2014. Retrieved on 4 November 2014 from <http://www.die-gdi.de/discussion-paper/article/green-industrial-policy-managing-transformation-under-uncertainty/>.

- M** Madeiros, L.O. de (n.d.). City in Focus Belo Horizonte, Brazil: Waste to Energy for more Effective Landfill Site Management. Published by International Renewable Energy Agency (IRENA) and ICLEI Local Governments for Sustainability. Retrieved 30 March 2015 from http://www.irena.org/Publications/RE_Policy_Cities_CaseStudies/IRENA%20cities%20case%203%20Belo%20Horizonte.pdf.

McKnight, A. and B. Nolan (2012). Social impacts of inequalities. AIAS, GINI Intermediate Work Package 4 Report. Retrieved on 4 November 2014 from http://gini-research.org/system/uploads/391/original/Intermediate_Work_Package_4_Report.pdf?1351592931.

Meadows, D., D. Meadows, J. Randers and W. Behrens (1972). The limits to growth. New York: Universe Books.

Meadows, D., J. Randers and D. Meadows (2004). Limits to growth: The 30-year update: Chelsea Green Publishing.

Metcalf, G. (1999). A distributional analysis of green tax reforms. National Tax Journal: 655-681.

Mikkelsen, G. M., A. Gonzalez and G. D. Peterson (2007). Economic inequality predicts biodiversity loss. PloS one 2(5): e444.

- N** Nas, P.J.M. and R. Jaffe (2004). Informal Waste Management. Shifting the focus from problem to potential. Environment, Development and Sustainability 6: 337-353.

Negre, M. (2010). Concepts and operationalization of pro-poor growth: World Institute for Development Economic Research (UNU-WIDER). Working Paper Series wp2010-47. Retrieved on 25 Feb 2015 from http://www.wider.unu.edu/publications/working-papers/2010/en_GB/wp2010-47/.

- O** OECD (2011). Divided we stand: Why inequality keeps rising. Paris: OECD. Retrieved on 18 June 2015 from <http://www.oecd.org/els/soc/49170768.pdf>.

OECD (2012). Inclusive green growth: For the future we want. Paris: OECD. Retrieved on 23 September 2014 from <http://www.oecd.org/greengrowth/Rio+20%20brochure%20FINAL%20ENGLISH%20web%202.pdf>.

OECD (2013). Putting green growth at the heart of development. Paris: OECD. Summary for Policymakers. Retrieved on 18 June 2015 from http://www.oecd.org/development/environment-development/Putting%20Green%20Growth%20at%20the%20Heart%20of%20Development_Summary%20For%20Policymakers.pdf.

- P** Pearce, D. (1991). The role of carbon taxes in adjusting to global warming. The economic journal: 938-948.

Piketty, T. (2014). Capital in the 21st century: Harvard University Press.

Pode, R. (2013). Financing LED solar home systems in developing countries. Renewable and Sustainable Energy Reviews 25: 596-629.

- R** Rahman, S.M. and M.M. Ahmad (2013). Solar Home System (SHS) in rural Bangladesh: Ornamentation or fact of development?. *Energy Policy* 63: 348-354.
- Randers, J. (2010). What was the message of the limits to growth? Winterthur Club of Rome. Retrieved on 5 November 2014 from http://connect.clubofrome.org/ecms/files/resources/What_was_the_message_of_Limits_to_Growth.pdf.
- Ranieri, R. and R. Almeida Ramos (2013). Inclusive growth: Building up a concept. Brasilia: International Policy Centre for Inclusive Growth (IPC-IG). Working Paper 104. Retrieved on 24 September 2014 from <http://www.ipc-undp.org/pub/IPCWorkingPaper104.pdf>.
- Rauniyar, G. and R. Kanbur (2010). Inclusive development: Two papers on conceptualization, application, and the ADB perspective. Ithaca: Cornell University. Retrieved on 24 September 2014 from <http://www.kanbur.dyson.cornell.edu/papers/ADBCompendiumInclusiveDevelopment.pdf>.
- Ravallion, M. (2001). Growth, inequality and poverty: Looking beyond averages. *World Development* 29(11): 1803-1815.
- Ravallion, M. (2004). Pro-poor growth: A primer. Washington, DC: World Bank. World Bank Policy Research Working Paper 3242. Retrieved on 25 Feb 2015 from <http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-3242>.
- Raworth, K. (2012). A safe and just space for humanity. Can we live within the doughnut? Oxford: Oxfam. Discussion Paper. Retrieved on 7 November 2014 from http://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/dp-a-safe-and-just-space-for-humanity-130212-en_5.pdf.
- Resnick, D., F. Tarp and J. Thurlow (2012). The political economy of green growth: Illustrations from southern Africa. UNU-WIDER Working Paper 2012/11. Retrieved on 26 September 2014 from <http://www.wider.unu.edu/stc/repec/pdfs/wp2012/wp2012-011.pdf>.
- Rockström, J., W. Steffen, K. Noone, Å. Persson, F. S. Chapin, E. F. Lambin, T. M. Lenton, M. Scheffer, C. Folke and H. J. Schellnhuber (2009). A safe operating space for humanity. *Nature* 461(7263): 472-475.
- S** Schellnhuber, H. J., D. Messner, C. Leggewie, R. Leinfelder, N. Nakicenovic, S. Rahmstorf, S. Schlacke, J. Schmid and R. Schubert (2011). World in transition — a social contract for sustainability. Berlin: German Advisory Council on Global Change (WBGU). WBGU Flagship Report.
- Stern, N. H. (2006). *Stern Review: The economics of climate change*. London: HM Treasury.
- Strange, T. and A. Bayley (2008). Sustainable development: Linking economy, society, environment. Paris: OECD. OECD Insights. Retrieved on 18 June 2015 from <http://www.oecd.org/insights/sustainabledevelopmentlinkingeconomysocietyenvironment.htm>.
- U** UNCED. (1992a). 'Agenda 21'. Retrieved on 22 September 2014 from <http://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>.
- UNCED. (1992b). 'Rio declaration on environment and development'. Retrieved on 22 September 2014 from <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163>.

UNEP (2010). Green economy: Driving a green economy through public finance and fiscal policy reform. Geneva: UNEP. Working Paper. Retrieved on 22 September 2014.

UNEP. (2014). „What is the „green economy?‘ Retrieved on 22 September 2014 from <http://www.unep.org/greeneconomy/aboutgei/whatisgei/tabid/29784/default.aspx>.

UN HABITAT (United Nations Human Settlements Programme) (2010). Solid Waste Management in the World's Cities. London and Washington, DC: Earthscan.

UNIDO (United Nations Industrial Development Organisation) & GIZ (2015). Enhancing the Quality of Industrial Policies (EQuIP). Vienna/Bonn: UNIDO & GIZ. EQuIP-Toolbox.

United Nations. (2014). „Millennium Development Goal 1: Eradicate extreme poverty & hunger‘. Retrieved on 26 September 2014 from <http://www.un.org/millenniumgoals/poverty.shtml>.

V Van Heerden, J., R. Gerlagh, J. Blignaut, M. Horridge, S. Hess, R. Mabugu and M. Mabugu (2005). Fighting CO₂ pollution and poverty while promoting growth: searching for triple dividends in South Africa. Poverty Reduction and Environmental Management (PREM) Working Paper 05/02.

W WEF (World Economic Forum) (2013). Global risks 2013, 8th ed. Köln World Economic Forum. Retrieved on 17 December 2014 from <http://reports.weforum.org/global-risks-2013/>.

WIEGO (Women in Informal Employment Globalizing and Organizing) (2011). Recycling in Belo Horizonte, Brazil – An Overview of Inclusive Programming. Cambridge: WIEGO. WIEGO Policy Brief (Urban Policies) 3.

Wilkinson, R. and K. Pickett (2010). The spirit level: Why equality is better for everyone. London: Penguin UK.

Winkler, H. and A. Marquard (2009). Analysis of the economic implications of a carbon tax. Energy Research Centre, University of Cape Town (February).

World Bank (2012). Inclusive green growth: The pathway to sustainable development. Washington, D.C.: World Bank.

World Bank. (2013). „Organized waste picking improves lives and cities‘. Retrieved on 18 June 2015 from <http://go.worldbank.org/016NDOMHF0>.

World Bank Indicators (2015). Retrieved 24 March 2015 from <http://data.worldbank.org/indicator>.

Y Yusuf, A. and B. Resosudarmo (2007). On the distributional effect of carbon tax in developing countries: The case of Indonesia. Papers No. EEN0706, Economics and Environment Network, The Australian National University 70.

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