

Centre for
Climate Change
Economics and Policy



Grantham Research Institute on
Climate Change and
the Environment

*The Munich Re Programme: Evaluating the Economics
of Climate Risks and Opportunities in the Insurance Sector*

Policy indexes – what do they tell us and what are their applications? The case of climate policy and business planning in emerging markets

Swenja Surminski and Andrew Williamson

September 2012

**Centre for Climate Change Economics and Policy
Working Paper No. 101**

Munich Re Programme Technical Paper No. 14

**Grantham Research Institute on Climate Change and
the Environment**

Working Paper No. 88

The Centre for Climate Change Economics and Policy (CCCEP) was established by the University of Leeds and the London School of Economics and Political Science in 2008 to advance public and private action on climate change through innovative, rigorous research. The Centre is funded by the UK Economic and Social Research Council and has five inter-linked research programmes:

1. Developing climate science and economics
2. Climate change governance for a new global deal
3. Adaptation to climate change and human development
4. Governments, markets and climate change mitigation
5. The Munich Re Programme - Evaluating the economics of climate risks and opportunities in the insurance sector (funded by Munich Re)

More information about the Centre for Climate Change Economics and Policy can be found at: <http://www.cccep.ac.uk>.

The Munich Re Programme is evaluating the economics of climate risks and opportunities in the insurance sector. It is a comprehensive research programme that focuses on the assessment of the risks from climate change and on the appropriate responses, to inform decision-making in the private and public sectors. The programme is exploring, from a risk management perspective, the implications of climate change across the world, in terms of both physical impacts and regulatory responses. The programme draws on both science and economics, particularly in interpreting and applying climate and impact information in decision-making for both the short and long term. The programme is also identifying and developing approaches that enable the financial services industries to support effectively climate change adaptation and mitigation, through for example, providing catastrophe insurance against extreme weather events and innovative financial products for carbon markets. This programme is funded by Munich Re and benefits from research collaborations across the industry and public sectors.

The Grantham Research Institute on Climate Change and the Environment was established by the London School of Economics and Political Science in 2008 to bring together international expertise on economics, finance, geography, the environment, international development and political economy to create a world-leading centre for policy-relevant research and training in climate change and the environment. The Institute is funded by the Grantham Foundation for the Protection of the Environment, and has five research programmes:

1. Global response strategies
2. Green growth
3. Practical aspects of climate policy
4. Adaptation and development
5. Resource security

More information about the Grantham Research Institute on Climate Change and the Environment can be found at: <http://www.lse.ac.uk/grantham>.

This working paper is intended to stimulate discussion within the research community and among users of research, and its content may have been submitted for publication in academic journals. It has been reviewed by at least one internal referee before publication. The views expressed in this paper represent those of the author(s) and do not necessarily represent those of the host institutions or funders.

Policy indexes – what do they tell us and what are their applications? The case of climate policy and business planning in emerging markets

Swenja Surminski and Andrew Williamson

Abstract

The last two decades have witnessed an explosion in the publication of country indexes that measure and rank the relative policy performances of governments. Whilst there is a well understood audience for such rankings amongst policy-makers and the media, much less is known about their use and applicability to business users and business planning. In this study we explore if and how policy indexes can assist business decision-making and compare and contrast the strength and weaknesses of using indexes between their current target audience of government decision makers and business planners.

We focus on one particular area – climate policy – where several of these types of indexes have been developed, all with different aims, varying in methodology applied and data used. Our analysis is supported by an investigation of the information content of these climate change indexes and by a number of stakeholder interviews with business representatives. Despite several challenges and limitations to the use of policy indexes by business leaders, we suggest that the need for data and information to support business planning and market entry decisions is strong – particularly in emerging markets and in sectors that face political uncertainty.

1. Introduction

We seem to live in a world where everything is being measured, compared, benchmarked and mapped. Decision makers demand numbers, league tables and rankings to argue their case, to justify their strategies, or to monitor their peers. This 'compulsion to measure' is evident across governments, businesses and wider society. One area where this trend is particularly noticeable is in the field of public policy monitoring and evaluation. We have witnessed increasing efforts in recent years to quantify certain aspects of public policy performance and to compare it against a set of goals or against other governments, across countries and policy areas. This has resulted in an explosion of country rankings that include a wide range of policy indexes (Bandura 2008). These analytical tools facilitate the assessment of a multitude of dimensions relating to a specific policy issue within a single, comparable measure across agents. A well known example is the United Nation's Human Development Index, which provides a single comparable statistic as a frame of reference for both social and economic development across the vast majority of the world's countries.

While it is hard to argue against informed decision-making, there are clearly significant challenges and limitations to quantifying public policy decisions and performances, as well evidenced in the discussion about accounting for intangibles such as wellbeing or trust, and measuring non-monetized societal benefits such as eco-system services. This paper does not intend to add to the continuously growing literature (see for example Pearce, Atkinson, & Mourato 2006) on this. We rather use this as the background to a related topic – the monitoring and measuring of public policy for strategic business planning across foreign markets. This is an area that has received surprisingly little attention from researchers. Our aim is to address this gap and to provide insights on information content and application. We explore if and how policy indexes can assist business planning and compare and contrast the strength and weaknesses of using indexes between their current target audience of government decision makers and business planners.

The operational importance to firms of regularly tracking political and policy developments in different markets has long been recognised (Kobrin 1979). By and large though, the process by which such vital operational information has been collected and disseminated has been unstructured and informal. Zink (1973) states for example that managers' main sources of political information tended to come from in-field employees, general news sources and financial institutions. Kobrin (1979) finds that whilst the vast majority of company managers rated political instability (or political risk including policy risks) as one of the major influences on their foreign investment decisions, that few firms reported any formal systematic analysis of political and policy environments in the markets that they operated in. This level of 'soft' analysis stands in stark contrast to that which would normally take place for the launch of a new product. Very few firms would scope and plan a new investment or sales strategy on a generalized feel for the market. Indeed Werther (1997) describes the inability of some companies to grasp the social and political

dynamics of certain countries and regions as one of the primary causes of business failure within overseas markets. He additionally asserts that business success in the “New World Disorder” will compel company bosses to incorporate multi-disciplinary skills into their business analysis of how societies react to foreign investment and change. Jansson (2008) further develops the idea that in an increasingly globalized market place multi-national corporations (MNCs) will need to create specific analytical tools for measuring, comparing and predicting developments in non-market factors such as government policy formulation. Wharton (2008) concur stating that while new and emerging markets still present opportunities, they also provide increased political and policy risks for multi-national corporations. The ability to better manage and understand these political risks is becoming increasingly important to these types of firms.

Our analysis is focused on one particular area – climate policy, where several of these types of indexes have been developed – all with different aims, varying in methodology applied and data used. Climate policy is an issue of high current salience with the media and policy-decision makers in terms of government performance and planning. It also represents a policy issue that will have an increasing impact on business planning and operational strategies for companies in the medium to long-term (Ranger and Surminski 2011). We believe that the findings are also relevant for other policy areas.

This paper is structured as follows. We begin our analysis by reviewing one particular approach to mapping, monitoring and comparing public policy – the use of policy indexes in general (section 2). We then introduce the four most relevant climate policy indexes and examine their characteristics (section 3). Two analytical tools are applied to arrive at our conclusions: stakeholder interviews with business representatives in selected sectors (section 4) and a correlation assessment of different climate policy indices, in order to investigate their information content and to assess their strengths and weaknesses in a business planning context (section 5). Our analysis concludes with a discussion of the application of policy indexes for business planning (section 6).

2. The use of policy indexes for mapping, monitoring and comparing public policy

The increased compulsion to measure public policy can be traced back to the 1980s (Carter, Klein and Day 1995). With the prevailing ethos of the time that government had to become more accountable, more decentralised and provide greater value for money, a more systemic way of assessing and measuring government performance became desirable. Many countries witnessed the emergence of policy performance indicators and assessments, such as National Health Service waiting lists and school exam performance tables in the United Kingdom.

These indicators can be styled in several ways. They may be defined according to whether they are concerned with impacts, process or outcomes and also as to whether they are quantitative (involving numerical measurements) or qualitative in nature (for example involving people's opinions or perceptions). Indicators may also be specific (relating to one single metric) or they may be composite, where they condense a wide range of information on different metrics (but related) phenomena into a single measure. Where these composite indicators are used to evaluate performance across different agents (for example countries, schools, hospitals etc) they are also commonly referred to as indexes or rankings. A descriptive indicator is defined as one that signals what is happening in the specific policy area (such as health or the environment), while a performance indicator is linked to a reference value or policy target¹.

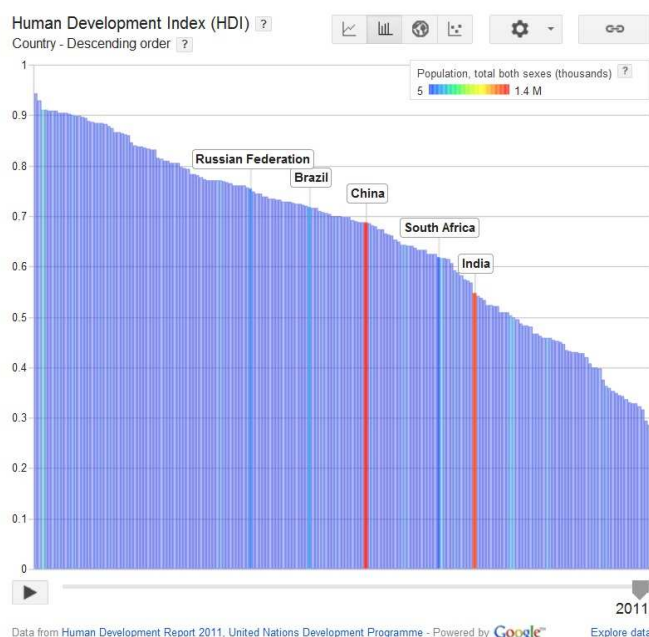
There has been a noticeable increase in the publication of cross-country indexes in recent years². The origins of this exercise can be found in the field of credit ratings, with Moodys' Sovereign Credit Ratings in 1914 referenced as the first ever example (Bandura 2008). However, the majority of published indexes were created in the 2000s. Bandura (2008) summarises no less than 178 separate indexes that rank or assess countries according to some economic, political, social or environmental measure. Some of them are frequently covered by the media and are well-known with the public, such as the Human Development Index³. Others are less eminent. Indexes are produced by private and public organisations as well as individual scholars. The indexes usually comprise of several indicators or sub-indexes which are aggregated by a formulated methodology to provide an overall score for a country. These scores are then used to create a ranking to show progress (or retreats), to provide a comparative snap-shot of countries at a given point in time, or to examine performance against other metrics or indicators (see figure 1).

¹ A useful typology of indicator types is provided in European Environment Agency (EEA) 1999. Environmental Indicators: Typology and Overview. Technical Report No 25/1999. <http://www.eea.europa.eu/publications/TEC25>

² According to Bandura (2008) the first composite indicators were Moody's Sovereign Credit Ratings (which began by evaluating US bonds), circa 1914.

³ <http://hdr.undp.org/en/statistics/>

Figure 1 – The United Nation's Human Development Index 2011



What has been the basis of the demand and supply for these indexes? The literature points to the 'urge to measure' as a key driver behind the development of cross-country indexes. Munda and Nardo (2003) state that "the proliferation of these indexes is a clear symptom of their political importance and operational relevance in decision-making". Sharpe (2004) similarly believes that the increasing use of indexes "...reflects a growing recognition of the important role macro-indicators can play as a tool for evaluating trends in and levels of economic and social development and for assessing the impact of policy on well-being". There are additional benefits to audience reception and understanding from the use of indexes. The OECD (2008) states that these types of cross-country comparative measures have been recognised as useful tools in policy analysis and for raising awareness and discussion with the public in general, through their explicit rankings and benchmarking. Saltelli (2007) also notes that it is much easier for the general public to interpret indexes than it is to identify common trends across many separate indicators. Indeed, the 'success' of an index is sometimes simply observed by its ability to raise the salience of an issue with the broader public and decision makers. To date it seems clear that the publication of country/government performance indexes, on a variety of issues has been very much targeted at the public (often through the provision of interesting headlines for the media) and ultimately at government/policy decision-makers. Indexes as a source for benchmarking different countries appear to be particularly popular with the media – an explanation of why many of these indexes are developed and published by public advocacy groups. The non-governmental organisation (NGO) Germanwatch⁴ for example report media coverage in over 100 countries for the results of their 2009 Climate Change Performance Index (Burck and Bals 2006-2011). In this context the media can

⁴ Based on interview and published material available at <http://germanwatch.org/en/home>

be considered as a key user of indexes. This is confirmed by anecdotal evidence from public affairs representatives in business, academia and public service that we have spoken with. They all agreed that developing and publishing these types of indexes can trigger a lot of media interest and can help get key messages into the public domain.⁵ This plays to the general interest in league tables and rankings – which one could call the “medal table effect”.

In the context of environmental indexes Smeets and Weterings (1999) find that they “may be used as a powerful tool to raise public awareness on environmental issues. Providing information on driving forces, impacts and policy responses, is a common strategy to strengthen public support for policy measures”. Highlighting the under-performance of a country in comparison to its peers or praising good relative achievements can be motivating factors, triggering political pressure which encourages additional policy making.

The application and information content of policy indexes is subject to debate. On the one hand, the provision of indicators of policy inputs or their outputs (often referred to as ‘performance indicators’) can play an important role in turning data into useful, actionable-upon information for government decision-makers and the public. While there may exist a preponderance of data from monitoring and surveillance programmes – especially in the industrialised countries – providing the information in an easily (and useful) digestible format for all stakeholders remains a significant challenge. The indicator maker needs to select information that is directly relevant to the task in hand, and provide a transformation and translation of the information into a consistent and coherent form. In addition, the manner in which the component indicators are selected and weighted for aggregation may be largely subjective. Indexes can therefore send misleading policy messages if they are poorly constructed or misinterpreted. They might not also reflect on the dynamics of policy making processes, as aim and content of policies can change frequently throughout the different phases of the policy cycle, which is difficult for a rather static indicator to track. The “big picture” results produced by policy indexes may invite user (especially policy-makers) to draw simplistic analytical or policy conclusions. Sharpe (2004) for example, in his survey of cross-country indexes finds that trade-offs are common in their construction and that a balance is often struck between conceptual sophistication and transparency that can potentially confuse the end-user. Böhringer and Jochem (2007) analyse eleven sustainability indexes that are widely used in policy practice to measure national sustainable development. The authors assert that given the lack of application of technique to the normalization and weighting of the indicators – which are generally done in a subjective manner – that none of the indexes are potentially fit for purpose.

Reflecting on the different positions in the debate, Saisana et al. (2005) conclude :“[...] it is hard to imagine that the debate on the use of composite indicators will ever be settled [...] official statisticians may tend to resent composite indicators, whereby a lot of work in data collection and editing is

⁵ Based on conversations with five public affairs representatives.

“wasted” or “hidden” behind a single number of dubious significance. On the other hand, the temptation of stakeholders and practitioners to summarise complex and sometime elusive processes (e.g. sustainability, single market policy, etc.) into a single figure to benchmark country performance for policy consumption seems likewise irresistible.” (Saisana et.al. 2005).

In summary we establish that policy indexes have become common tools for comparing public policy across countries, while their usability and applicability clearly depends on their construction. A range of strengths and weaknesses thus emerge when assessing current indexes. Table 1 summarizes this.

Table 1 - Strength and weaknesses of policy indexes in the context of policy making

Strength	Weaknesses
Can summarise complex, multi-dimensional realities	May send misleading policy messages if poorly constructed or misinterpreted.
Are easier to interpret than a long list of separate indicators.	May invite simplistic policy conclusions.
Can assess progress of countries over time.	May be misused, e.g. to support a desired policy, if the construction process is not transparent and/or lacks sound statistical or conceptual principles.
Reduce the visible size of a set of indicators without dropping the underlying information base.	The selection of indicators and weights could be the subject of political dispute.
Enable users to compare complex dimensions effectively.	May disguise serious failings in some dimensions and increase the difficulty of identifying proper remedial action, if the construction process is not transparent.
Place issues of country performance and progress at the centre of the policy arena.	May lead to inappropriate policies if dimensions of performance that are difficult to measure are ignored.
Facilitate communication with general public (i.e. citizens, media etc.) and promote accountability.	May not reflect the dynamic nature of policy making.
Help to construct/underpin narratives for lay and literate audiences.	

Source: OECD (2008), adapted from Saisana and Tarantola (2002).

These strength and weaknesses specifically refer to the use of indexes in a policy making context. For our analysis it is particularly interesting to investigate to what extent these points are also relevant for the business-use context. In order to do this we will focus on the relative young area of climate

policy. The section below introduces four climate policy indicators that form the basis of our analysis.

3. Policy indexes in the field of climate change

There are a number of indexes that aim to measure and monitor climate policy across countries. In her extensive overview Bandura (2008) catalogues a range of indexes with an environmental focus⁶. Some of them encompass a wide range of environmental aspects while others are more narrowly focused on a particular environmental area (we have compiled a list of the most widely recognized indexes – see Annex 1). Within this group we can differentiate between:

1. Very broad indexes that have an environmental component, which also includes climate change related indicators, such as the Commitment to Development Index⁷ and the Dashboard of Sustainability⁸.
2. Environmental indexes with a climate change component. Examples are the Happy Planet Index⁹ and the Environmental Sustainability Index¹⁰.
3. Specific climate policy indexes such as the Climate Laws Institutions and Measures Index (CLIMI)¹¹ and Index of Sustainable Energy (ISE)¹².

Annex 2 provides much more detail on the stated purposes of these indexes and the climate change related factors being assessed within their respective index frameworks. One significant observation we have made in reviewing the publication timelines of these indexes is that there appears to have been an evolution in the way that environmental issues across countries have been quantified, and released into the public domain. Initially, quantitative assessments were largely based on specific performance indicators such as CO₂, SO_x, NO_x and particulate matter emissions. In more recent times climate change centric indexes (as the salience of the issue has increased) have been produced and publicised that look beyond final performance and which incorporate more directly initial measures of public policy enactments or aspirations.

This move away from the ‘output’ indicators and their aggregation into composite indicators towards a greater evaluation of the ‘inputs’ through assessments of climate policy centric indexes, is illustrated in figure 2.

⁶ Bandura 2008 details no less than 18 separate indexes with an environmental focus.

⁷ http://www.cgdev.org/section/initiatives/_active/cdi/

⁸ <http://www.iisd.org/cgsdi/dashboard.asp>

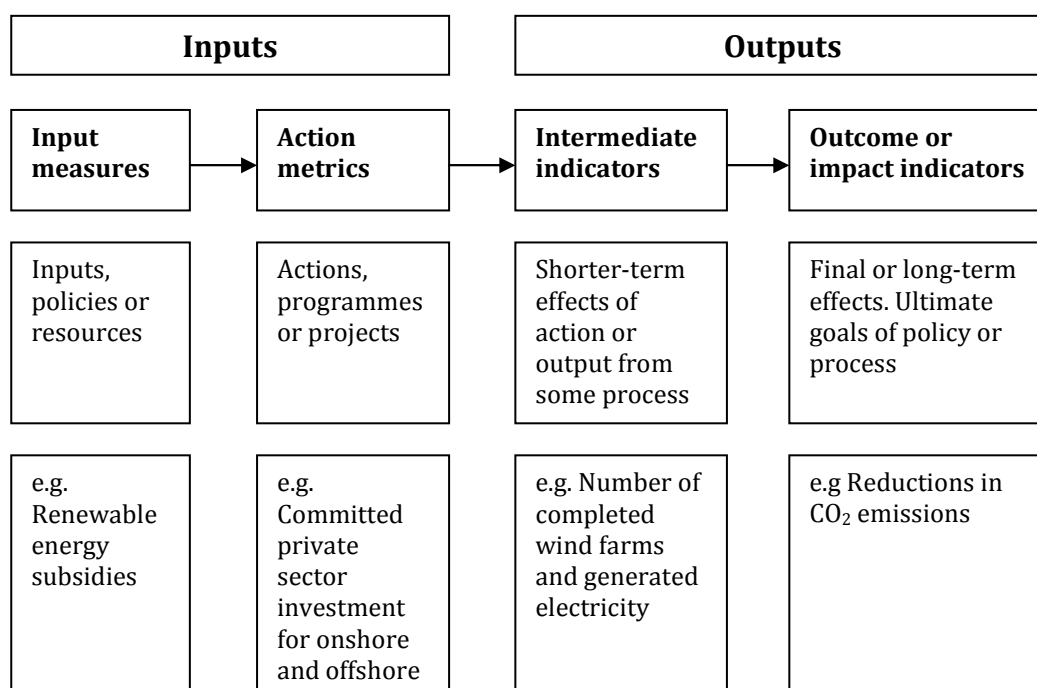
⁹ <http://www.happyplanetindex.org/>

¹⁰ <http://sedac.ciesin.columbia.edu/es/esi/>

¹¹ www.ebrd.com/downloads/research/transition/trsp.pdf

¹² <http://www.ebrd.com/pages/research/publications/brochures/securing.shtml>

Figure 2 – Simplified illustration of the structure of indicator systems



Source: adapted from Cust, J. 2009. Using intermediate indicators: lessons for climate policy. Climate Policy 9 (2009) pp. 450-463

For our analysis, we focus on those indexes where climate policy indicators make up either all of the components of the overall index or feature as an important sub-component of the index. These four indexes were selected as they were the most commonly referred to in the context of comparing the extent and quality of countries' climate change policies. The indexes are described here only briefly, we provide further discussion of them in our analysis (section 5).

A) The European Bank for Reconstruction and Development's (EBRD) Climate Laws, Institutions and Measures Index, or CLIMI (2011)¹³

The EBRD's CLIMI serves as an attempt to investigate the factors driving CO₂ emission performances across the transition economies by measuring how much climate policy differs in terms of quality and pervasiveness across nations. The authors outline the challenges involved in the construction of the index. These include the large range of government policies and measures that can influence climate change and the lack of consistent and comparable data on policies across countries. The index is composed of four thematic categories that highlight the most important areas of climate change mitigation policies and measures. These are international cooperation; domestic climate framework; sectoral fiscal or regulatory measures or targets; and cross-sectoral fiscal or regulatory measures. The index provides a comparative assessment of the extensiveness and quality of climate change mitigation legislation, policies, measures and institutions in 95 countries around the

¹³ www.ebrd.com/downloads/research/transition/trsp.pdf

world. In contrast to many other indexes it does not include an assessment of outcomes, implementation quality or adaptation measures. The CLIMI therefore measures the policies that countries have implemented but does not provide an assessment of the quality of the implementation of those policies.

- B) Germanwatch's¹⁴ Climate Change Performance Index (using the climate policy component of the overall index), (2012, uses 2011 data)

Germanwatch is an independent public advocacy group which lobbies for sustainable global development. They have produced the Climate Change Performance Index (CCPI) in conjunction with CAN Europe¹⁵ annually since 2005. The stated primary objective of the CCPI is to encourage political and social pressure on those countries which have, up to now, failed to take ambitious actions on climate protection, as well as highlight those countries with best-practice climate policies. The index is composed of three main thematic categories. These are emissions trends; emissions levels; and climate policy. Each of these categories in turn is composed of separate individual metrics. For the climate policy sub-indicator, an assessment is made by individual country experts on the extent of and quality of each country's commitment to international policies and regulation, as well as its domestic policies and regulation. The results of the Climate Change Performance Index are publicised every year by CAN-Europe and Germanwatch at the UN Climate Change Conference of the Parties (COP) in order to focus as much attention on the results as possible. According to Germanwatch, the fifth edition of the index presented at Copenhagen in 2009 (COP15) generated media reports in over 100 countries. The CCPI also influences at the policy-maker level, with many delegates at COP using the index to better inform them on how their governments could improve their overall country ranking.

- C) The EBRD's¹⁶ Index of Sustainable Energy (again taking the climate policy component of the overall index), (2010).

The Index of Sustainable Energy (ISE) – which is also produced by the EBRD – is pitched as a monitoring tool that allows experts and policy-makers to better evaluate individual countries' adherence to international best practice in three areas. They are compliance with international standards on energy efficiency; development of renewable energy sources; and the extent of policies to address climate change. The EBRD's main aspiration for the ISE is that it facilitates discussions of each country's existing policy framework and encourages reforms and improvements where necessary. In order to aid this aspiration the ISE is now published annually alongside the standard transition indicators that feature every year in the organisation's flagship "Transition Report"¹⁷. The EBRD team also claim that the setting of a common benchmark allows policy-makers and opinion setters to better gauge progress

¹⁴<http://www.germanwatch.org/klima/ccpi.htm>

¹⁵ <http://www.climnet.org/>

¹⁶<http://www.ebrd.com/downloads/research/brochures/sse.pdf>

¹⁷<http://www.ebrd.com/pages/research/publications/flagships/transition.shtml>

in their own country and also helps them to learn from the experiences of other countries.

D) Künkel, Jacob and Busch's¹⁸ Climate Policy Index (2006).

Künkel, Jacob and Busch's Climate Policy Index acts as a tool to help explain the variation in countries' stringency and type of domestic climate policies as well as adherence to their international commitments. The index measures climate policy performance and draws on existing quantitative and qualitative data on national climate policies by sector for three time periods. The authors used the index to help explain the differences in country rankings based on their capacity to deliver climate policies and act upon them as part of a wider empirical investigation. To our knowledge the index was only produced as a one-off for this research and has not been updated since. Their model of the capacities for environmental policies encompasses the relative strength, competence and configuration of the governmental and non-governmental proponents of environmental protection and the specific cognitive-informational, political institutional and economic-technological framework conditions.

4. Findings from stakeholder interviews: the application of climate policy indexes in the context of business planning and strategic decision making

The surge in the publication of policy indexes in the last few decades – across a wide range of policy areas – has been primarily targeted at the public (through the media) and policy decision-makers, but it is less clear if and how these tools are used in the business context. In order to investigate the application of policy indexes by businesses, we conducted several stakeholder discussions in different industry sectors. Our selection of stakeholders was based on two assumptions:

- I. We expected to learn most about the use of climate policy indices by looking at sectors that are widely deemed to be relatively sensitive to climate policy impacts. Therefore we conducted interviews with senior business leaders in three particular economic sectors: energy production and distribution; commercial aviation; and insurance. All three sectors are already directly or indirectly exposed to current and future policy changes relating to climate change. For the insurance industry, previous work by Ranger and Surminski (2011) has indicated that climate policy is likely to provide opportunities and risks to existing business models, while Feyen et.al (2011) see public policy as an important driver for the development of insurance.
- II. We also expected climate policy indices to be more relevant (if relevant at all) in new and emerging markets. These tend to be newer, more

¹⁸http://userpage.fu-berlin.de/ffu/akumwelt/bc2006/papers/Kuenkel_et_al_Climate.pdf

challenging operating environments for companies as there is often less knowledge about domestic political, legal and regulatory factors, as well as a more limited understanding and confidence in the procedures behind these factors. With diminished growth potential in the developed markets, the development of these mega-emerging markets is often regarded as the future global economic motor – making these markets very relevant to investors and companies searching for new potential. But this economic development has also led to a growing share in world-wide greenhouse gas emissions for emerging countries. The current economic growth projections for these countries imply a very high business-as-usual emissions trajectory. While the OECD's cumulative contributions to climate change damage is currently around 45%, under many plausible scenarios for future economic growth paths this fraction is expected to decline to around 25% by the end of the century. Conversely the share of emerging market economies is expected to grow considerably to twice that of the OECD countries by 2100. These economies will therefore make an extremely significant contribution to climate change in the 21st century, making their national and international climate policy making globally as well as in the eyes of investors and other decision makers potentially very relevant. We therefore believe that the tracking and analysis of the climate policy landscape in emerging markets would be of greater relevance to those businesses operating or investing in those countries.

Our stakeholder discussions – while only scratching at the surface of this issue and far from providing a complete picture – nevertheless show evidence of a range of applications for climate policy indexes. The discussions also seem to support our findings of an evolution in the way climate change aspects are being monitored. The main findings of our interviews are provided below.

The energy utility company

The energy utility surveyed is one of Asia's leading energy suppliers with a business history dating back over 100 years. It has extensive operations in Hong Kong, mainland China, India, Australia, south-east Asia and Taiwan. The environmental affairs team at the energy utility doesn't formally follow the publication of climate policy indexes, but does monitor regulatory standards across different countries. This information is then linked back to the company's carbon intensity value and its performance to an internally set reduction target. As a company it aims to achieve beyond required local standards in all of the markets it operates in.

The company does undertake internal environmental market assessments of its operations. It has recently conducted climate adaptation assessments and likely operational requirements based on climate policy trends in India and Taiwan for example. More formal assessments on environmental and climate change issues and national policies that may shape market entry and strategic operational issues for the company are outsourced to external legal

and management consultancies. These assessments are undertaken roughly every two years. General on-going policy tracking is done in a more qualitative way by senior managers within the company's environmental affairs and group operations teams. Other internal tracking is undertaken by their in-house legal team. The main sources of information for their internal tracking include information supplied by relevant country trade organisations, in-field employees and relevant news feeds. The team did however express an intention to further formalise their climate policy tracking, with a greater focus on quantitative analysis with the near-term possibility of creating their own internal policy tracking indexes.

The commercial aviation company

The commercial airliner surveyed is one of the world's top ten airlines by operating profit. Its main operations and hubs are in Asia although its operational geographic is truly global, servicing over 110 destinations. Similarly to the utility company, the airline doesn't formally follow the publication of climate policy indexes although there is awareness of a number of them. The company does however place an emphasis on a range of climate change relevant and environmental indicators that they produce and track internally. These include measures on CO₂ emissions and waste disposal that are of great importance to the company's sustainability targets and pledges. One of the key aspects of this performance tracking is not only to hit absolute internal targets that are set by the management team, but to also use these as a benchmark to compare themselves to other competitors and ensure the continued best-practice status.

The credibility of indexes and the reputation of the organisations creating them are important to the airline, influencing the decision to track or participate in an index. The tracking of regulatory issues across different markets is a relatively new strategic exercise for the company. Indexes are seen as offering useful benchmarks, allowing the company to align global practices to those of the most stringent country (for post-flight waste disposal for example this was currently stated to be Australia). The company experts interviewed see a natural progression in the near-term from their engagement with environmental company indexes and ratings towards the production of quantitative assessments of environmental and climate change regulatory requirements across markets by their in-house team.

The insurance company

Our survey covers two companies – one of the world's largest reinsurers and one American-based insurer.

The reinsurer operates in all lines of insurance and currently employs around 50,000 people globally. The representatives we talked to actively track the country rankings of one of the climate policy indexes previously described – Germanwatch's Climate Change Performance Index. Indeed the insurance company team were instrumental in initially designing the index as part of

their corporate climate change advocacy work. The annual country rankings (which are normally published just ahead of the annual Conference of the Parties of the United Nations Framework Convention on Climate Change) are used by the insurance team to brief their own delegates to the conference on their respective governmental performance. The company makes less use of alternative climate policy indexes. While there is a general awareness of these tools and recognition of their importance for policymakers and the public, the indexes are deemed to be extraneous to strategic business planning. Our discussions revealed that the reinsurer had already undertaken an internal assessment to devise their own in-house country ranking index, which includes measures of policy risk. The company partakes in the annual Insurer Climate Risk Disclosure Survey championed by the National Association of Insurance Companies¹⁹ in the US.

The insurance company surveyed is US domiciled, with operations in 25 countries. It has over US\$100bn in assets under management and is a member of the Standard and Poor's 500 list of leading US companies. The strategy team confirmed frequent use of country ranking indexes including for market entry decisions in emerging economies. This is in stark contrast to the other companies that we consulted with. Popular country assessments for the insurer's strategy team included the World Bank's Doing Business Index²⁰, Transparency International's Perceptions of Corruption Index²¹ and the World Economic Forum's World Competitiveness Index²². However, none of these have a strong climate change component. In describing their market entry strategies, the representative explained that the company always undertook a detailed preliminary assessment of a potential new country market. The final assessments were often influenced by benchmarking exercises, based on indexes and country rankings, covering overall business and policy environment dimensions across countries. For example the company would use the scores for Mexico (in which it is already operational) vis-à-vis a potential new market such as Colombia (where it has no presence) to gauge potential entry strategies and requirements. Based on the information provided by indexes and country ranking, the company has now developed its own proprietary assessment which uses a scoring system to support market entry decisions.

5. Analysis of information content, strength and weaknesses of climate policy indices in a business context

Our stakeholder discussions suggest that there are business applications for the climate policy indices. In order to gain a better understanding of the information content of these tools and to comment on their strength and weaknesses we undertook a correlation analysis.

¹⁹ http://www.naic.org/Releases/2009_docs/climate_change_risk_disclosure_adopted.htm

²⁰ <http://www.doingbusiness.org/rankings>

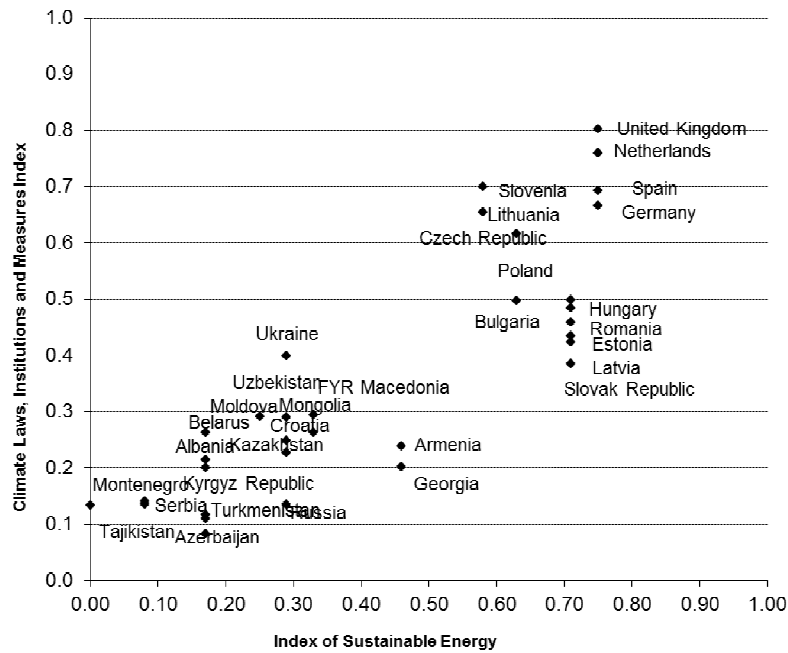
²¹ <http://cpi.transparency.org/cpi2011/>

²² <http://www.weforum.org/issues/global-competitiveness>

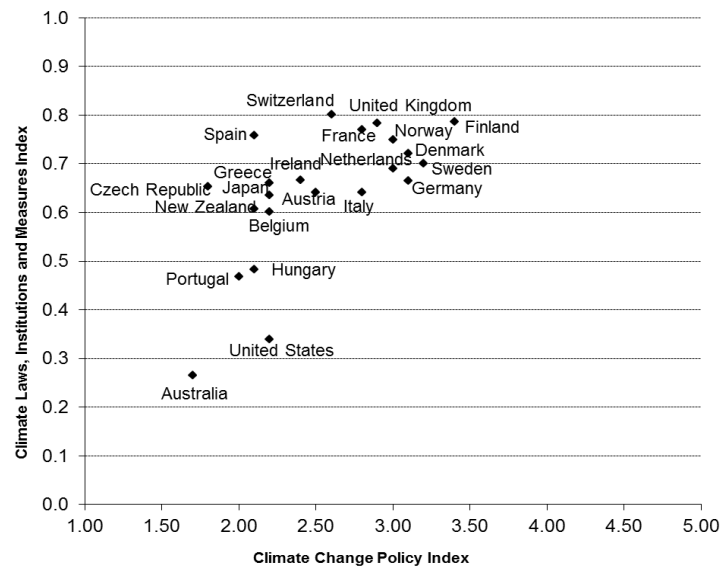
Given the narrow measurement objective of climate policy indexes, one would assume a very large degree of overlap in terms of the results and country rankings. However, in practice this is not necessarily the case. Our first major observation is that the results shown by current and past indices can vary between countries, due to the different set-up, data input and objectives. To illustrate this we have investigated our sample of climate policy indexes by plotting the indexes against each other and calculating the correlation coefficients between the country scores. A limitation to this for one of the indexes is the fact that not all of the indexes have been updated regularly – so we are comparing their results for different base years.

Table 2 – correlation coefficients between indexes

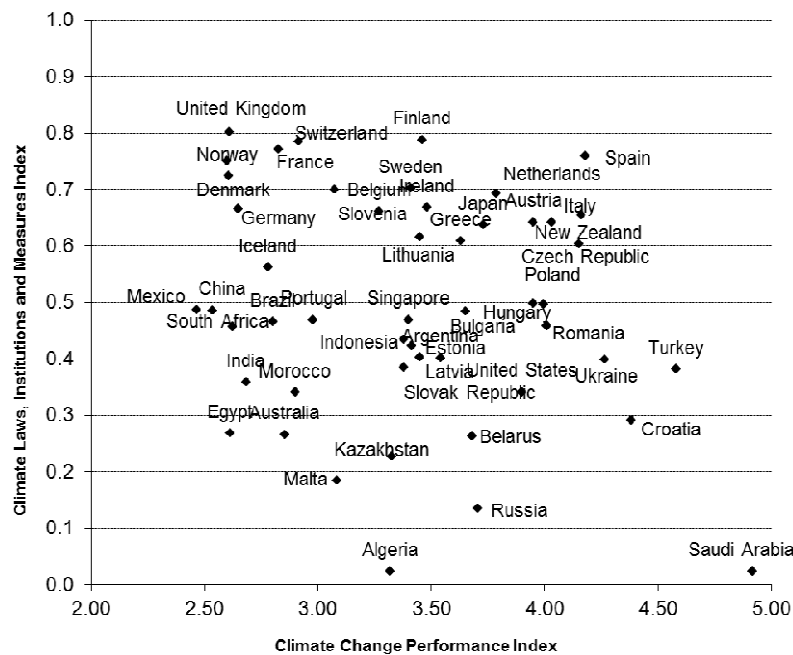
	EBRD - CLIMI (2011)	EBRD - ISE (Climate Policy) (2010)	Germanwatch - Climate Change Performance Index (Policy scores) (2012)	Künkel et al - Climate Policy Index (2006)
EBRD - CLIMI (2011)	1.00	0.85	0.19	0.64
EBRD - ISE (Climate Policy) (2010)	0.85	1.00	0.32	0.69
Germanwatch - Climate Change Performance Index (Policy scores) (2012)	0.19	0.32	1.00	0.37
Künkel et al - Climate Policy Index (2006)	0.64	0.69	0.37	1.00

Figure 3 – CLIMI against ISE

We find a close correlation between the CLIMI and the ISE (correlation coefficient of 0.85) for the countries covered by both indexes. EBRD (2011) outline the similarities and differences between their two measures. In our analysis we have taken the climate policy components of the ISE only and have dropped the measures relating to energy efficiency and renewable energies and their outcomes. We therefore obtain a higher correlation coefficient than in the EBRD's comparison. Nevertheless, variations in country performance between the two indexes remain. These are mostly due to distinctions in the aspects of climate policy being measured. The CLIMI covers all sectors of the economy that contribute to greenhouse gas emissions while the ISE concentrates on the energy sector.

Figure 4 – CLIMI against Climate Change Policy Index

The variations in country performance are more pronounced between the EBRD's CLIMI and ISE and that of Künkel et al's Climate Policy Index. Of course, the Climate Policy Index precedes the EBRD's indexes by several years, so we are not reviewing comparably over time. This may help explain some of the variation in results as climate policy presumably changed across a number of countries over time. To check on the influence of time, we repeated the exercise comparing Künkel et al's Climate Policy Index to that of Germanwatch's Climate Change Performance Index in 2006, a comparable time period for measurement between the two indexes. We find a very similar correlation coefficient of 0.34 to that of the initial comparison. Differences in the actual measurement criteria across the indexes more likely explain a large part of the differences in country scores. Künkel et al's Climate Policy Index is much broader in its sectoral coverage for example, including policy measures for industry, renewable energy technologies and energy efficiency but also for households, buildings and transport. It also incorporates and distinguishes between two types of indicators: those that measure the stringency of climate policies and those that measure the stringency of climate policies and its evolution over time.

Figure 5 – CLIMI against Climate Change Competitiveness Index

The variation in country scores and rankings is most pronounced between the CLIMI, the ISE and the climate policy sub-component indicator of Germanwatch's Climate Change Performance Index, despite them being examined over a much more comparable time period. Countries such as Brazil and China score quite well in Germanwatch's assessment for example, but are considered to be only mid-ranking countries by the EBRD's CLIMI. Within the developed economies, Spain provides the largest divergence in country ranking, coming fifth overall in the CLIMI (out of 95 countries) while only achieving a rank of 35th (out of 61 countries) in Germanwatch's climate policy assessment for 2012.

What explains these variations in country rankings? Our analysis suggests that scope and data sources are key factors impacting on the results. Germanwatch's climate policy assessment covers a wider range of sectors (including energy, transport, residential and industry) than the EBRD's ISE, but actually has a closer correlation to the ISE than the CLIMI. The CLIMI and Germanwatch's climate policy assessment cover both international and domestic climate policy issues so there should be more overlap there. Germanwatch's climate policy scores are collated from a survey of climate change experts from non-governmental organisations. By means of a questionnaire, these experts assign a score based on the perceived strength and quality of climate change policies of their governments relating to the energy, transport, residential, and industry sectors. The EBRD team behind the CLIMI utilised a somewhat different approach. At its core the EBRD chose to base its climate policy assessments on what they perceived to be the most systematic information on countries' climate change mitigation policies and measures available: the National Communications to the United Nations Framework Convention on Climate Change (UNFCCC). The National Communications include detailed accounts of climate change adaptation and

mitigation policies and measures adopted by national governments. These differences in methodologies (and the use of subjective assessments on climate policies) most likely produce much of the variation in country scores.

Künkel et al (2006) observe that cross-national comparisons of the stringency of climate policies are hampered in their construction by the different ways in which these are often recorded and calculated by different countries, and that this made the building of their own index extremely difficult. Detailed analysis and suggestions as to the best way to measure the quality and stringency of climate policies across countries is beyond the scope of this paper. Suffice to observe however, that even for what would be assumed to be a relatively narrow and concise measure for an index – climate change policies – different teams approaching the same measurement objective have come up with quite different results. Some caution should therefore be observed from the use of indexes to compare country performance on climate change policies. These differences in results are largely explained by subtle “under the bonnet” differences in scope, sectoral focus and time.

Our findings, both from the stakeholder discussion and the correlation analysis, suggest that policy indexes can serve as useful business planning tools. There are however several caveats to the use of indexes that business planners should beware of. We have adapted Table 1 ‘Strengths and weaknesses of policy indexes in the context of policy making’ (OECD 2008) to the business case as a way to illustrate these strengths and weaknesses:

Table 2 - Strength and weaknesses of policy indexes in the context of business planning

Strength	Weaknesses
Can summarise complex, multi-dimensional realities and business objectives influenced by national business policies and regulations.	May send misleading business strategy messages if poorly constructed or misinterpreted.
Are easier to interpret than a long list of separate indicators.	May invite simplistic business planning.
Can assess the attractiveness of different markets for market-entry strategies, or operationally over time.	May be misused, e.g. to support an otherwise weak business plan if the construction or assessment process is not transparent and/or lacks sound statistical or conceptual principles.
Reduce the visible size of a set of indicators without dropping the underlying information base.	The selection of indicators and weights could be the subject of dispute. Different parts of the business may view the importance of the components of an index differently.
Enable business users to compare complex dimensions of market	May disguise serious failings in some dimensions and increase the difficulty

operation and market entry decision-making effectively in a simple quantitative way.	of identifying proper remedial action, if the construction process is not transparent or misunderstood by the business users.
Places issues of country market attractiveness, policy stability and policy uncertainty at the centre of business strategy.	May lead to inappropriate business planning if dimensions of performance that are difficult to measure are ignored.
Facilitates communication with employees and clients as well as promote accountability and the transparency of the business' strategy to shareholders.	Indexes may not reflect the dynamic nature of policy making and useful points in the policy making cycle.
Help to construct/underpin narratives for lay and literate audiences.	Current published policy indexes may be too macro in scope and not granular enough for a specific firm's interests and products.

Our findings highlight a range of challenges for the application of climate policy indices in business planning. For policy monitoring it is particularly important to recognize the dynamic nature of public policy, with decisions being subject to change and revision from the first proposal stage to the final implementation ('policy cycle'). Such dynamics can never be sufficiently captured by an index.

In addition, the current vogue of mainstreaming a number of public climate policy aspirations through their integration with other policy areas will make the detection and distinct measurement of distinct climate policy signals increasingly difficult (DEFRA 2012²³, IIED 2012²⁴). There could also be a degree of re-labelling of public policies, which would be difficult to capture solely through indexes. For example the interchangeable use of the sometimes more politically palatable energy security policy aspirations rather than explicit climate policy targets (see Deloitte 2007²⁵).

6. Concluding discussion

Our analysis has investigated if and how businesses use climate policy indices, and we have also explored the information content as well as strength and weaknesses of these tools. This work has revealed four main observations, which are discussed in this concluding section:

- I. There is evidence of business use of climate policy indices.

²³ <http://sd.defra.gov.uk/2012/07/departmental-business-plans-demonstrate-mainstreaming-of-sustainable-development/>

²⁴ <http://www.environmental-mainstreaming.org/>

²⁵ http://deloitte-ftp.fr/Lot-B-Energie-ressources/doc/ClimateChangeAndEnergySecurity_2007.pdf

Our investigation suggests that firms, particularly those operating in emerging markets or planning new market entry strategies, consider the monitoring of public policy and political risk as an important intelligence element in the shaping of their overall business strategy. Nevertheless it is only in recent years that senior managers have attempted to formalise their tracking and measurement of public policy across countries. This has been accompanied by an explosion of country rankings that include a wide range of policy evaluation indexes, which in themselves have become more and more concise at measuring specific issues, including environmental aspects. Whilst the climate policy indexes described in this paper are not originally devised or intended for a business audience (but rather other agents primarily based in the media and in government), we find evidence of their use across business sectors. We additionally find that where policy indexes are used for business planning, they can be highly influential. The benchmarking of countries in a simple, quantitative way appears to be one of the most attractive features of these indexes as it assists firms in their strategic decision-making. With certain scorings, for example on political stability and corruption, they may even determine a 'veto' for a company's decision on whether to enter a new country market. In addition indexes can also assist businesses in simplifying and communicating what may be a complex array of climate change goals to employees and customers. Indexes can be useful tools to businesses too in simplifying and communicating what may be a complex array of climate change goals to employees and customers. The significance of these types of analytical tools to an individual firm however depends greatly on the type of business and economic sector they operate in: those deemed most interested are companies operating in new and emerging markets, who are involved in high-risk activities and already subject to a high level of public intervention and regulation.

II. The indices display varied information content.

We note significant variations in the information provided by the indices we review. This is most likely a consequence of the way they are constructed and maintained. It is important to remember that none of the four climate policy indices explicitly aims at informing a business audience. Instead, their intended key audience are mostly policy-decision makers in government. These stakeholders (and the NGOs publishing them) are usually highly attuned to specific aspects of climate policy and would therefore be better equipped to understand the differences in scope, design and sectoral focus of specific climate change indexes, than business users. But in our investigation we also note that if these indices are considered by businesses, it is through internal experts, external consultants or experts in trade bodies. For more general business users and planners these subtleties of construction and objectives that are so important for fully understanding the indexes, may therefore be missed. A cautionary note then to business users would be the importance of fully understanding the intended measure of policy indexes or the need to aggregate the results of several indexes for business planning and market assessment. This could lead to the development of new more business-focused indexes in the future.

- III. There appears to be a trend towards ‘build-your-own indices’ within the business community.

The significance of construction and measurement objectives may be one of the underlying reasons why our business interviewees suggested that they were now devising their own country ranking measurements that were finely attuned to their own business objectives. We have noticed a common evolution in the way that environmental and climate change factors are being assessed by companies over time. For companies in economic sectors that are already subject to high levels of public intervention and regulation, the internal recording of performance indicators such as carbon-dioxide emissions and waste disposal has long been seen as important to business operations, and reporting on those is often mandatory. There has also been a general awareness in business of policy indexes produced by NGOs and academics. We noticed that businesses recognize the limitations of the “one-size-fits-all” nature of the indexes and consider developing their own tailor-made scoring and indicator system. Each of the companies interviewed has shown interest in creating their own indexes, one that would be tailor-made to suit their own analytical requirements. At the same time, firms continue to seek support from sectoral business associations, peer groups, and external service providers including law firms and management consultancies who offer bespoke policy and regulatory monitoring.

- IV. The evolution of policy indices suggest a move away from output measures towards input metrics.

Investigating the specific case of climate policy, we have observed a trend over time in the publication of indexes that rank countries: the shift of focus from performance metrics (outputs) towards assessments of the original policy formulations (inputs). In other words, rather than just comparing countries in terms of their emission levels, there is now more focus on the climate change policies in place. We propose that this shift is of special relevance for business planning and market entry strategy. The reasons for this are twofold: First, entering a new market is often a mid- to long-term investment decision that requires extensive capital raising and expenditure. Policy indexes can aid the understanding of the current state of play of public policy making in those markets and allow comparison across countries before making an investment decision. Secondly, we suggest that these policy indices might enable businesses to be influential in shaping policy that is conducive to their businesses at the earliest stages of the policy cycle rather than at the end of it. In terms of Figure 2 – and using the energy utility company as an example – it seems advantageous in a business planning sense to be aware of (and involved in) discussions concerning appropriate renewable energy subsidies across potential markets rather than just monitor current output performance indicators of measures such as CO₂ emissions across countries. This is not to say that the tracking of performance indicators (outputs) is of much less use to business leaders, but we suggest that they

are less useful for overall business planning. As highlighted by our stakeholder interviews with business this seems to be a very recent stage in the evolution of policy evaluation and more research would be needed to investigate our proposed conclusions.

In conclusion, despite the highlighted challenges and limitations, we suggest that the need for data and information to support business planning and market entry decisions is strong – particularly in countries and sectors with economic and political uncertainty. It is therefore unlikely that the appetite for ranking, indices and benchmarking will recede soon.

Acknowledgements

This research was supported by the Centre for Climate Change Economics and Policy and the Grantham Research Institute on Climate Change and the Environment, which are funded by the Grantham Foundation for the Protection of the Environment, the UK Economic and Social Research Council (ESRC) and Munich Re. The authors are grateful to Katharina Rietig, Philipp Hasenmueller, Jan Burck and our stakeholder interview partners for their comments and feedback. The views expressed in this paper are our own.

References

- Bandura, R. (2008). *A Survey of Composite Indexes Measuring Country Performance: 2008 Update*. UNDP/ODS Working paper. Office of Development Studies, United Nations Development Programme, New York.
- Böhringer, C., & Jochem, P.E.P. (2007). Measuring the Immeasurable – A Survey of Sustainability Indexes. *Ecological Economics* 63, 1-8.
- Burck, J. (2006 - 2011 yearly): The Climate Change Performance Index: Results, Germanwatch.
- Burck, J., Bals C. (2006 - 2011 yearly): The Climate Change Performance Index: Background and Methodology, Germanwatch.
- Carter, N., Klein, R., & Day, P. (1995). *How Organisations Measure Success. The Use of Performance Indicators in Government*. Routledge, London.
- Cust, J. (2009). Using Intermediate Indicators: Lessons for Climate Policy. *Climate Policy*, 9, 450-463.
- EBRD. (2011). Special Report on Climate Change: The Low Carbon Transition. London: EBRD. Retrieved from: <http://www.ebrd.com/downloads/research/transition/trsp.pdf>

Ernst & Young. (2011). *Action Amid Uncertainty: The Business Response to Climate Change*. Retrieved from:

<http://www.ey.com/GL/en/Services/Specialty-Services/Climate-Change-and-Sustainability-Services/Action-amid-uncertainty--the-business-response-to-climate-change>

Feyen, E., Lester, R., & Rocha, R. (2011). *What Drives the Development of the Insurance Sector? An Empirical Analysis Based on a Panel of Developed and Developing Countries*. World Bank, Working Paper S5572.

KPMG. (2007). *Climate Change Business Leaders Survey*. Retrieved from: <http://www.kpmg.com/cn/en/issuesandinsights/articlespublications/pages/climate-change-business-o-200706.aspx>

Jansson, H. (2008). *International Business Strategy in Emerging Country Markets. The Institutional Network Approach*. Edward Elgar Publishing Limited. Massachusetts.

Knowledge@Wharton. (2008). *Political Tensions are Creating New Rules for International Business*. Retrieved from:

<http://knowledge.wharton.upenn.edu/article.cfm?articleid=2057>

Kobrin, S.J. (1979). Political Risk: A Review and Reconsideration. *Journal of International Business Studies*, 10(1) (pp. 67-80).

Künkel, N., Jacob, K., & Busch, P.O. (2006): Climate Policies: (the Feasibility of) a Statistical Analysis of their Determinants. *Paper read at 2006 Berlin Conference on the Human Dimensions of Global Environmental Change. Resource Policies: Effectiveness, Efficiency and Equity*. Dec 17-18 2006, at Berlin.

Munda, G., & Nardo, M. (2003). *On the Methodological Foundations of Composite Indicators Used for Ranking Countries*. European Commission Joint Research Centre.

OECD. (2008). *Handbook on Constructing Composite Indicators. Methodology and User Guide*. Paris: OECD.

Pearce, D.W. Atkinson, G. and Mourato, S. (2006) Cost-Benefit Analysis and the Environment: Recent Developments, OECD, Paris.

Ranger, N. and Surminski, S. (2011). A preliminary assessment of the impact of climate change on non-life insurance demand in the BRICS economies. Working Paper of the Centre for Climate Change Economics and Policy.

http://www.cccep.ac.uk/Publications/Working-papers/Papers/7079/WP72_climate-change-non-life-insurance-brics.pdf

Saisana M. & Tarantola S. (2002). *State-of-the-art report on current methodologies and practices for composite indicator development*. European Commission-JRC: Italy.

Saisana M., Tarantola S., & Saltelli A. (2005). Uncertainty and sensitivity techniques as tools for the analysis and validation of composite indicators. *Journal of the Royal Statistical Society*, 168(2), 1-17.

Saltelli A. (2007). Composite Indicators Between Analysis and Advocacy. *Social Indicators Research*, 81, 65-77.

Sharpe A. (2004). *Literature Review of Frameworks for Macro-indicators*. Centre for the Study of Living Standards, Ottawa.

Smeets, E., & Weterings, R. (1999). *Environmental indicators: Typology and Overview*. European Environment Agency, Technical Report no. 25.

Werther, G.F.A. (1997). Doing Business in the New World Disorder: Assessing, Understanding, and Effectively Responding to the Challenges of Social and Political Instability within Emerging Markets. *Competitive Intelligence Review* 8(4) (pp. 12-18).

Zink, D.W. (1973). *The Political Risks for Multinational Enterprises in Developing Countries*. NY: Praeger

DRAFT

Annex 1

List of commonly referenced environmental indexes

Air Quality Index – WEF, Yale & Colombia University

Climate Analysis Indicators Tool (CAIT) – World Resources Institute

Climate Change Performance Index (CCPI) – Germanwatch and Climate Action Europe

Climate Competitiveness Index – UNEP and Accountability

Climate Laws, Institutions and Measures Index (CLIMI) – European Bank for Reconstruction and Development

Climate Performance Index – Künkel, Jacob and Busch

Commitment to Development Index – Center for Global Development and Foreign Policy (includes sub-component on environmental policies)

Concern about Environmental Problems – Parker

Dashboard of Sustainability – International Institute for Sustainable Development

Ecological Footprint – World Wildlife Fund

Environmental Degradation Index (EDI) – Raghbendra Jha (Australian National University) and K.V. Bhanu Murthy (University of Delhi)

Environmental Performance Index (EPI) – Center for International Earth Science Information Network (Columbia University) and Yale Center for Environmental Law and Policy (Yale University)

Environmental Performance Index for Rich Nations – Birdsall and Roodman

Environmental Policy Performance Index – Adriaanse A.

Environmental Sustainability Index (ESI) – Center for International Earth Science Information Network (Columbia University) and Yale Center for Environmental Law and Policy (Yale University)

Environmental Vulnerability Index (EVI) – South Pacific Applied Geoscience Commission (SOPAC)

Global Climate Risk Index – Germanwatch

Happy Planet Index (HPI) – Friends of the Earth, New Economics Foundation

Index of Environmental Friendliness – Puolamaa et al

Index of Environmental Indicators – Fraser Institute

Index of Social Vulnerability to Climate Change (SVI) - Katharine Vincent, Tyndall Centre for Climate Change Research

Index of Sustainable Energy – European Bank for Reconstruction and Development

Living Planet Index (LPI) – World Wide Fund

National Biodiversity Index – World Conservation Monitoring

Natural Capital Index – (MNP)

Pilot Environmental Performance Index – WEF, Yale & Colombia University

Pollution-Sensitive Human Development Index (HDPI) – Lasso de la Vega and Urrutia

Responsible Competitiveness Index – Alex MacGillivray, John Sabapathy and Simon Zadek from Accountability – Institute of social and ethical accountability

Sustainability Index – Organization/Author: Zurich Cantonal Bank (ZKB)
Sustainable Society Index (SSI) – Organization/Author: Geurt van de Kerk and Arthur Manuel – Nederlandduurzaam
Synthetic Environmental Indices – Isla Mar
Total Wealth and Genuine Savings Index – World Bank
Water Poverty Index (WPI) – Peter Lawrence, Jeremy Meigh and Caroline Sullivan for the Centre for Ecology & Hydrology at Wallingford (UK)

Annex 2

Background detail on a sample of published indexes.

Type	Index	Stated Purpose	Climate change relevant metrics used in the index
Broader index with an environmental component	The Center for Global Development's Commitment to Development Index	Published annually since 2003 and featured in <i>Foreign Policy</i> magazine, the index ranks 22 of the world's richest countries on their dedication to policies that benefit the populations of the world's poorer nations. The index is composed of five major sub-indexes that quantify rich country actions on aid, trade, investment, migration, the environment, security and technology. The stated primary objective of the index by the authors was to use the rankings to draw attention to specific development issues, educate the public and policymakers, stimulate thinking and debate, and serve as a flagship	<ul style="list-style-type: none"> • Greenhouse gas emissions and fossil fuel production • Economic growth minus emissions growth • Gasoline tax • Ratification of the Kyoto Protocol

		<p>piece of research for their institution. On evaluating the index's impact, the authors state that the most engaged audience has been officials at bilateral aid agencies. The Dutch and Finnish governments for example have adopted the CDI as an official metric of development policy performance.</p>	
<p>Broader index with an environmental component</p>	<p>The International Institute for Sustainable Development's Dashboard of Sustainability</p>	<p>The Dashboard of Sustainability is a free, non-commercial software package that aims to illustrate the complex relationships among economic, social and environmental issues. The visual format is intended for decision-makers and others interested in sustainable development. It is a featured service of the Consultative Group on Sustainable Development Indicators (CGSDI). The role of the CGDI is to develop ways to meet demands from government ministers, foundation executives and heads of corporations for a</p>	<ul style="list-style-type: none"> • Ecological footprint • Environmental Sustainability Index • The European Environment Agency's Environmental signals 2001 • Eurostat's data set of Towards Environmental Pressure Indexes • Ecosistema Urbano 2002 • Italy's Regional Environmental Performance Index

		manageable set of composite indicators that are easy to understand and use in policy formulation.	
Environmental index with a climate change component	The New Economic Foundation's Happy Planet Index (HPI)	The Happy Planet Index was launched in July 2006 and was intended to be an alternative measure of well-being and progress to more conventional indicators such as gross domestic product. The authors of the index and accompanying analysis have identified health and a positive experience of life as achievable universal human goals, and the natural resources that our human systems depend upon as the fundamental inputs for achieving this. The HPI is intended to measure progress towards this target – the ecological efficiency with which happy and healthy lives can be supported sustainably. Within two days of the HPI's launch the report had been downloaded and read in 185 countries worldwide.	<ul style="list-style-type: none"> • Carbon footprint
Environmental index with a climate change	Environmental Sustainability Index	The Environmental Sustainability Index was produced by teams from Yale	<ul style="list-style-type: none"> • Participation in international collaborative efforts • Greenhouse gas

component		<p>University and Colombia University, in collaboration with the World Economic Forum and the Joint Research Centre. It was launched at the World Economic Forum in Davos in January 2005 in order to directly inform 'captive' senior decision makers at the conference, and encourage further discussion. The authors describe the ESI as a valuable policy tool, facilitating the benchmarking of environmental performance across countries, issue-by-issue. The producers of the ESI believe it creates pressure for improved results by showcasing the leading nations and laggards in environmental performance, something supra-national bodies are often unwilling to do.</p>	emissions
Climate Policy Index	The EBRD's Climate Laws, Institutions and Measures Index (CLIMI)	<p>The CLIMI was devised to be an analytical tool that would further enable quantitatively, the investigation of the relatively poor emission outcomes of many transition economies. The authors believe that</p>	<ul style="list-style-type: none"> • Kyoto ratification • Institutional capacity with regard to Joint Implementation (JI) and the Clean Development Mechanism (CDM) • Cross-sectoral climate change legislation • Carbon emissions target • Dedicated climate change institution

		<p>emission outcomes are based on policies and measures, which in turn are embodied in laws and institutions. The results of the CLIMI were tested against six major factors that the authors identified from the political economy literature, as most likely to drive public policy on climate change. The resulting econometric investigation establishes the linkages and the significance of these influences.</p>	<ul style="list-style-type: none"> • Explicit climate change targets for transport; buildings; agriculture; forestry; industry; • Additional cross-sectoral fiscal or regulatory measures
Climate Policy Index	The EBRD's Index of Sustainable Energy	<p>The Index of Sustainable Energy (ISE) was first produced in 2008 as part of a dedicated report, "Securing Sustainable Energy in Transition Economies". It was described as a monitoring tool that would allow experts and policy-makers to evaluate individual countries' adherence to international best practice in three areas; energy efficiency; development of renewable energy sources; and the extent of policies to address climate change.</p>	<ul style="list-style-type: none"> • Extent and coverage (sectoral) of energy efficiency/saving/conservation laws and targets • Existence of autonomous energy efficiency agency or department including staffing levels, budget, input into policy drafting • Strength and activities relating to energy efficiency policy discussions • Extent of market incentives (collection rates; transmission losses; end-user tariffs; funding/tax breaks) for energy efficiency measures • Energy intensity (energy use per \$PPP of GDP (2005)) • Extent and coverage of renewable energy laws and targets • Existence of autonomous

			<p>renewable energy agency or department including staffing levels, budget, input into policy drafting</p> <ul style="list-style-type: none"> • Strength and activities relating to renewable energy policy discussions • Extent of market incentives (tariffs; green certificates; funding/tax breaks) for renewable energy projects • Number of renewable energy projects implemented • Share of renewable energy in annual electricity generation • Ratification/observer/no status of UNFCCC and Kyoto agreement • Designated focal government institution on climate change • Extent of national climate change policies and targets • Extent of climate change mechanisms such as carbon taxes; cap and trade; JI; CDM • Carbon output to US\$ GDP quintile ranking in the world
--	--	--	---