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PRIVATE SECTOR INITIATIVES ON MEASURING AND REPORTING ON GREEN GROWTH

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Green growth gains momentum, not only for governments but for companies as well. They see increasingly the opportunities that come along with 'green growth' as well as the relevance of mitigating environmental and social risks to which they are exposed.

This paper's central message is that high quality information is necessary to support decisions that drive green growth. Accordingly, this paper aims to:

- Survey the landscape of corporate reporting relevant to green growth, including the key user groups, the business rationale for reporting and examples of corporate reporting;
- Discuss the existing guidance that supports business in corporate reporting relevant to green growth;
- Identify the key barriers to corporate reporting relevant to green growth;
- Identify research gaps.

Introduction

1. In June 2009, Ministers from 34 countries signed a Green Growth Declaration, declaring that they will: "Strengthen their efforts to pursue green growth strategies as part of their responses to the crisis and beyond, acknowledging that green and growth can go hand-in-hand." They endorsed a mandate for the OECD to develop a Green Growth Strategy, bringing together economic, environmental, social, technological, and development aspects into a comprehensive framework.

> *"Green growth is about fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies. It is also about fostering investment and innovation which will underpin sustained growth and give rise to new economic opportunities."*
>
> Source: OECD (2011) Towards Green Growth

2. A central idea is that 'green' can promote growth. This can be achieved by getting the framework conditions right, by setting the price signals and regulatory actions that provide incentives towards substituting away from scarce environmental resources and by fostering innovation, productivity and human capital.[1]

3. Green Growth implies breaking the link between economic growth and increased pressure on the environment, thus enabling economic growth to reduce poverty within the current generation while maintaining the carrying capacity of the earth for future generations.[2] Companies play a major role in moving towards green growth.[3] They start to embrace this concept — not out of a philanthropic urge, but as a business response to both mitigate environmental and social risks to which they are exposed as well as to embrace the business opportunities that come along with it. They see the benefits in increased reputation, trust from stakeholders, including from governments, improved risk management, being more attractive to high-quality employees and improved continuity of the business.[4] The business model is changing gradually from a view based on short-term financial returns to a holistic view based on responsibility and value creation, taking into account the full value chain.

4. Building on the work of the International Resource Panel[5] report, "Decoupling and Efficiency*",* about assessing resource efficiency and productivity, and decoupling economic activity from resource use and related environmental impacts, at both sector and economy-wide levels, it is clear that innovation is needed that results in less inputs or impacts per unit of output. Companies are starting to acknowledge that the traditional economic growth paradigm that treats the environment mostly as a 'free good' is placing enormous pressure on the environmental carrying capacity of the earth and therefore will now or in the future also affect their business. They start to decouple their economic growth from their environmental performance in their target setting.[6] However 'services from natural assets are rarely quantified and yet they are central to examining the greening of growth'.[7]

5. This paper reflects on the measurement and reporting of green growth efforts by the private sector.

6. In moving towards green growth both business, as well as governments need information to support their strategic and operational decisions. It helps them to define a clear strategy, identify the targets to operationalise the strategy, and monitor performance against the targets set. And it provides them with the opportunity to assess the risks of not achieving these targets in time and enables them to take appropriate action.

7. Green growth is an opportunity that makes companies and governments increasingly work together to make this transformation happen. For instance, Large multinational companies are particularly

keen on supporting emerging and developing countries in developing their green strategies. The World Business Council for Sustainable Development has developed a Vision 2050, which describes the future macro-economic state and the role of business and society in co-creating this future. There are also examples at the national level. The Dutch Sustainable Growth Coalition, for example, unites the eighth largest big multinationals in shaping, sharing and stimulating sustainable business models. The changing role of business in society is also reflected in the increased participation by businesses in the discussions in various forums of the United Nations such as UN Global Compact, the development of the UN Sustainable Development Goals, as well as at international conferences such as the Rio+20 conference, which confirmed the importance of corporate sustainability reporting.

> *We acknowledge the importance of corporate sustainability reporting and encourage companies, where appropriate, especially publicly listed and large companies, to consider integrating sustainability information into their reporting cycle. We encourage industry, interested governments and relevant stakeholders with the support of the United Nations system, as appropriate, to develop models for best practice and facilitate action for the integration of sustainability reporting, taking into account experiences from already existing frameworks and paying particular attention to the needs of developing countries, including for capacity building*
>
> Source: Rio+20 (2012), The Future we want, article 47

8. When moving towards green growth requires a joint public private approach then there should also be more convergence between public and private measurement and reporting to follow the progress made to achieve the goals of green growth. There are, currently, a number of different initiatives that support reporting. For the private sector, the most well known for sustainability reporting is the framework of the Global Reporting Initiative (GRI): The Sustainability Reporting Guidelines. The more recently launched framework for integrated reporting of the International Integrated Reporting Council (IIRC) addresses more explicitly the holistic approach towards business performance. For the public sector, the OECD has developed indicators for monitoring green growth at a country level. In moving towards green growth such frameworks should where applicable be aligned.

9. This paper's central message is that high quality information is necessary to support decisions that drive green growth[8]. Accordingly, this paper aims to:

- survey the landscape of corporate reporting relevant to green growth, including the key user groups, the business rationale for reporting and examples of corporate reporting;
- discuss the existing guidance that supports business in corporate reporting relevant to green growth;
- identify the key barriers to corporate reporting relevant to green growth;
- identify research gaps.

Background on corporate measurement and reporting to support green growth

Corporate Accounting and Accountability

10. In the corporate business environment, traditionally "accounting" has a financial connotation. However, in recent years the term "accounting" has also been applied to non-financial aspects.

11. Corporate accounting can be defined as the identification, collection, estimation, analysis, internal and external reporting, of economic, social and environmental effects and impacts to provide accountability to stakeholders on strategy, actions and performance and to support internal and external decision-making.

Accounting:

- is the basis for both external reporting and internal management accounting;
- includes measurement and reporting;
- includes both quantification and disclosures.

12. Accountability can be defined as the obligation to account for activities, accept responsibility for them and disclose the results in a transparent manner.

13. Accountability in the context of sustainability is provided on a wide range of topics and indicators. Chapter 4 provides an overview of the most relevant frameworks to support business in providing accountability to their stakeholders.

The Landscape

14. The Corporate Register[9] database collects the environmental, sustainability and integrated reports most of the worlds' largest organizations. It has collected almost 6 000 reports, the majority of which (almost 3.000 reports) come from Europe. Figure 1 shows how the content of these reports has moved gradually from an almost exclusive focus on environmental issues towards a more holistic approach, involving the reporting of social and economic issues as well.

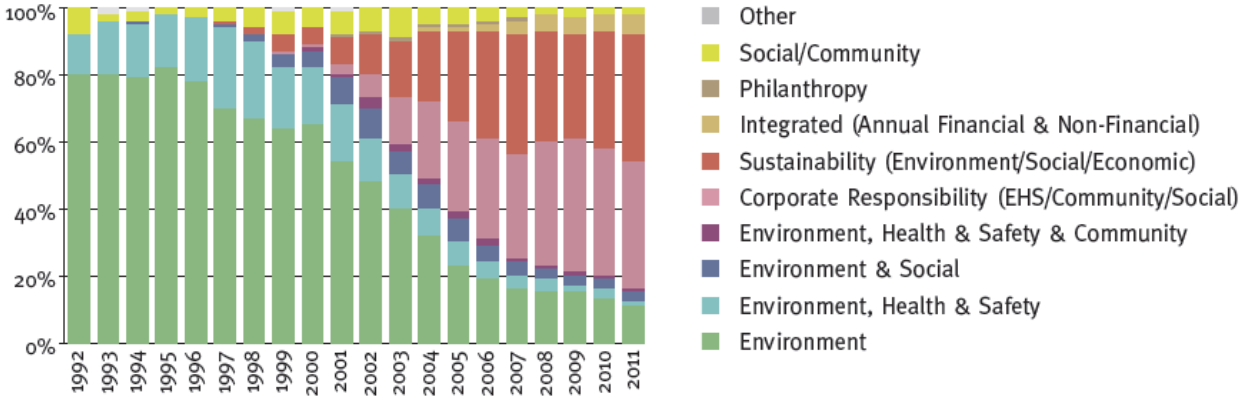

Figure 1: Global Report output by type and year 1992-2011

Source: Corporate Register (2012) Reporting Awards 2012: global winners & reporting trends
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15. The KPMG survey (2011)[10] found that 95% of the 250 largest companies in the world (G250 companies) report on their sustainability activities. Two-thirds of non-reporters are based in the US, but the number of reporters is increasing fast. Around half of Asia Pacific companies report on their CR activities, with a 60% in China. For the 100 largest companies in each of the 34 countries they studied, CR reporting by the consumer markets, pharmaceuticals and construction industries more than doubled since KPMG's last survey in 2008, but overall numbers in some sectors – such as trade and retail and transportation –

continue to lag behind. They found that ownership structure influences transparency. Publicly listed companies tend to be somewhat more advanced in CR reporting in comparison to other types of ownership structures. Of the 100 companies per country, 69%of publicly traded companies conduct CR reporting, compared to just 36% of family-owned enterprises and close to 45% for both cooperatives and companies owned by professional investors such as private equity firms.

16. From a EU survey (2011) it appears that the sectors that report most in Europe are financial services, energy and energy utilities, and construction (materials).[11]

17. Global Reporting Initiative (2013) identified that within sustainability reporting, the indicators that are most often used in relation to the environment are:*i)* greenhouse gases; *ii)* direct energy consumption; *iii)* fines and sanctions for non-compliance with environmental laws and regulations; *iv)* indirect energy consumption; and *v)* water usage.[12]

Corporate perspectives on reporting

The business rationale

18. When environmental reporting started in the early 1990s, for some the business rationale was initially to demonstrate compliance with the new environmental laws and regulations, as well as to demonstrate their 'license to operate', while others used their environmental report more like a marketing tool. It was especially the more polluting industries and organizations in consumer products that started to report on environmental performance. Later the reports were extended with health and safety information. Reporting was mainly to drive organizational legitimacy.[13]

19. In the late 1990s the pressure increased on companies to be not only transparent on the business performance on their own operations, but on their performance in the supply chain as well. Topics like product responsibility, human rights and anti-corruption became of importance. In addition to organizational legitimacy, business ethics became a driver for external transparency. At the same time internal transparency through environmental management accounting started to increase with a business rationale to improve efficiency and reduce costs, in relation to using natural resources, reducing emissions to air, water and soil, as well as in reducing waste. More recently companies increasingly see the relevance of sustainability for their long term business continuity and identify sustainability challenges as a business growth driver. They even transform their business to address such business opportunities. The company, DSM, active in health, nutrition and materials, for example, is not only changing from a chemical company to bio-based solutions, but also focuses its business activities much more on nutrition, as this will be a major global challenge. In their reporting they provide transparency on how they manage to use sustainability as growth driver. This process communication is relevant as they need the trust from their investors and stakeholders to successfully make these transformations.

20. Now the business case of sustainability becomes more obvious, one can also see an increasing awareness and commitment from CEOs to report on sustainability. Where in the nineties sustainability reporting was mainly the responsibility of the sustainability department or the public affairs department it is now increasingly the responsibility of the CEO.[14] [15] [16] Gradually the CFO also becomes involved. In an Ernst & Young survey (2012), 65% of respondents stated their CFO has become involved in sustainability, mainly from the viewpoint of cost reductions (74%) and managing risks (61%). The role in external reporting, however, still needs to be expanded[17].

21. A growing number of companies perceive sustainability to be of significant importance to their business and to be vital for future growth (Accenture 2012, Ernst & Young 2012).[18] A recent study by Eccles, Ioannou and Serafeim[19] (Harvard Business School, 2012) poled 180 companies from the USA,

shows that during the period 1993-2010 organizations who started integrating environmental accounting and reporting some 20 years ago, perform better compared with their organizational counterparts.[20]

22. They explain this by the fact that in these companies executives are responsible for sustainability and that incentives are more likely to be a function of sustainability metrics. The high sustainability performers have a more long-term focus, attract capital of dedicated investors, pursue a more effective risk strategy, engage with their stakeholders on an ongoing basis and show advanced transparency efforts. Moreover, the outperformance was found strongest in sectors on business to consumers and for those that are highly dependent on natural resources. These are the sectors where the economic impact of sustainability is most direct.

23. Companies are increasingly moving from an inside-out approach (starting with the company and then assessing external impacts) to an outside-in approach (starting with society and then assessing how the company can add value). This also impacts reporting. Companies increasingly align global challenges to company goals. For example, Unilever started with the goals of improving health and well-being, reduce their environmental impact and enhance livelihoods. From these overall goals, Unilever further defines subtopics, targets and actions on how performance can be improved and progress can be measured.

Accountability to whom?

24. The reasons for business to measure and report is twofold:

a) for reasons of external accountability; and

b) for reasons of internal management.

Here we explore these two perspectives both in more detail.

25. Although external accountability is addressed to all relevant stakeholder groups, in general investors, business partners, employees, customers and governments are identified as major group to whom accountability is provided.

Investors

26. Financial information is no longer sufficient to provide a full picture of a company's position and performance. Investors have become increasingly interested in sustainability as they have experienced that financial performance is more and more being driven by non-financial aspects. A survey of Ernst & Young (2012) found that 66% of the companies in the survey reported an increase of inquiries over the past 12 months from shareholders and investors about sustainability-related issues.

27. The request for non-financial information started with the use of information on sustainability (by investors often referred to as environmental, social and governance information) provided by companies to make the selection for inclusion in their sustainable investment funds. Gradually it is becoming more mainstream. In addition, non-financial information is becoming more relevant in company valuation. Standard & Poor's finds that non-financial information nowadays can determine up to 80% of a company's for market value.

28. Also indices request information from companies to compile rankings of the most sustainable companies included in the index. In addition to corporate reporting, investors use different other sources to make their investment decisions. These include publicly available information on the target companies and third-party databases, but also responses to questionnaires sent directly to companies.

An example of a large database that collects environmental information on behalf of investors is the Carbon Disclosure Project (CDP). They collect information on greenhouse gas emissions, water usage and strategies for managing climate change and water risks and have 722 signatories with US $ 87 trillion in assets. In 2013 requests to fill in the data will be send to 5.000 companies. CDP data is also disseminated via investor channels, such as Bloomberg terminals, where it is downloaded an average of 1 million times every six weeks

Source: www.cdproject.net

29. At the request of the European Commission, the Academy of Business in Society (EABIS, 2009)[21] identified the type of information required to make company evaluations and measure their market value. EABIS.[22] They found that, in addition to financial drivers like revenue growth, operational efficiency, brand equity, costs of capital and risk management, non-financial drivers such as human capital, relations with customers and the rest of society, environmental performance, innovation and corporate governance contribute to a firm's market value.

30. Investors also become more involved in the development of corporate reporting guidance on sustainability. The International Integrated Reporting Council identifies investors as the major user group for this type of reporting and have a separate investor group that provides input to the framework[23] (see also Chapter 4). In Europe, European Federation of Financial Analysts Societies (EFFAS),[24] has issued a guideline on indicators for environmental, social and governance relevant for the evaluation of corporate performance.

31. To address these information needs companies are increasingly including sustainability information not only in separate sustainability reporting, but in annual reporting as well. They also started to report more clearly on the business rationale for an integrated sustainability approach, thereby combining the contribution for people or the planet with the economic benefits for the company.

Box 1. Reporting on eco-efficiency

In demonstrating eco-efficiency, for example, BASF reports on a joint project with DOW to produce propylene oxide. The project is aimed at improving energy efficiency and reducing wastewater. Due to this investment BASF reports that they need 25% less capital to build new plants compared to traditional technologies and save for the environment up to 40 metric tons wastewater per ton of sales product compared to conventional processes and lowers energy consumption with 35%.

BASF reports that in order to manage eco-efficiency more widely for products such as plastic packaging and bags, laminate flooring, diesel additives, dishwashing tabs, they quantify the impacts on environment and society by combining life-cycle inventory and assessment, carbon footprint analysis, and ownership costs from cradle to grave. Environmental indicators they use include nutrition balance, erosion, eco-toxicity, water usage, (non-)renewable energy, and greenhouse gases.

32. Innovation is an important driver for green growth (OECD, 2011).[25] Companies also increasingly report on the economic benefits of products that have a better environmental performance over their full life cycle compared to mainstream products. Such products are identified through a lifecycle assessment, or in some cases via expert opinions. The producers of these products typically report the percentage of sales of these products, as well as the percentage of innovations. A KPMG survey (2011) found that of the 250 largest companies worldwide 62% of reported offering green or sustainable products.

Box 2. Reporting on innovation

InterfaceFlor, for example, reports on the value created through innovation. Through using recycled materials as much as possible in their carpets. Since 1996 they report to have reduced their waste by 80%, saving over USD433 million as a result. *(source: www.interfaceflor.com*).

The Life Sciences and Materials Sciences company DSM reports that by the end of 2012, the range of "Eco+" products counted for 43% of its running business sales and in 2012 for 80% of their innovation pipeline.

Source: www.dsm.com

Business partners

33. Business partners are another important user group for companies to account for their sustainability performance. Increasingly, companies have a policy around sustainability and expect from their business partners a similar approach. In addition, failures in the supply chain, even though not part of the financial reporting boundary of an enterprise, may adversely affect the reputation of companies and increasingly have a financial impact. They request sustainability information to gain this insight. This also impacts small and medium sized companies (SMEs) who increasingly need to compile environmental and social information to remain in business with their larger clients. This information enables the often larger companies to report on the performance in the full value chain, both upstream and downstream and mitigate potential reputation risks. It also enables them to identify where investments to improve sustainability performance have the biggest impact.

Box 3. Measuring the environmental footprint of the entire value chain

Unilever reports that to establish a baseline against which it could measure improvements in its environmental footprint, Unilever analyzed in 2008 the life-cycle greenhouse-gas (GHG) emissions of 1.651 products, originating from 14 countries and covering 70% of their sales volume in 2008. This exercise covered the GHG emissions related to the production of raw-material inputs, and the manufacture, transport, consumer use and disposal of their products. This measurement showed that the impact of Unilever's operations — manufacturing and distribution — accounts for only about 5% of life-cycle emissions of its products. The sourcing of raw materials and the way that consumers use the products at home account for more than 90% of the emissions, with consumers accounting for more than two-thirds. The product categories which make the largest contribution to consumers' carbon footprints are those for which the consumer is required to heat water. The information collated from their business partners enables Unilever to make a more focused action program to reduce the footprint in the entire value chain. In the annual reporting Unilever reports on this measurement and the strategic choices made based on this information.

Source: www.unilever.com

Consumers

34. Reporting to consumers is generally done for two reasons: *i)* to account for the sustainability impact of products and services (so far mostly just the environmental impact), and *ii)* to raise consumers awareness.

35. Companies that have produced more environmentally friendly products are likely to inform these benefits compared to the mainstream solutions offered. However, an increasing number of consumers become more skeptical on the environmental impact of the products they buy. Their trust in business to do

what is right is decreasing. They are critical to the vague claims made by companies and believe that companies portray themselves to be environmentally friendly and engage in "green washing" in order to increase sales and raise prices.[26] Therefore, companies are starting to include more detailed performance information in their reports rather than merely their mission and purpose. Further, the information is not only reported in their annual reporting, but increasingly calculated down to a product level. This enables consumers to make informed decisions.

Box 4. Reporting on environmental and sustainability impacts of products

The Sustainability Consortium, in which retailers, manufacturers, NGOs have joined efforts for example to develop a sustainability measurement and reporting system for major product categories sold by retailers. To increase consistency in reporting they provide guidance on what data to collect, how to collect it, and how it should be reported.

An example of product information on a product level is Tesco, a large British retailer. They recently published the carbon footprint of more than 900 of the products they sell.

36. Another reason for corporate reporting is to raise consumer awareness. Companies can raise customer awareness on environmental impacts and thereby contribute to lowering the global environmental impacts.

Box 5. Reporting on increasing customer awareness

Unilever aims to achieve these targets through product innovation as well as through raising awareness amongst consumers. In relation to the laundry process for example:

- Concentrating our liquids and compacting our powders.
- Reformulating our products to reduce greenhouse gas emissions by 15% by 2012.
- Encouraging our consumers to wash at lower temperatures and at the correct dosage in 70% of machine washes by 2020.

Another example of increasing customer awareness is provided by the Dutch Royal Railways. Its website shows the CO_2 emissions for each planned railway trip, and compares those to traveling by private car (compact/mid-range/large car and for each electric, hybrid, diesel, gas, petrol). A one-way rail trip from Rotterdam to Amsterdam can save up to almost 15kg of CO_2 emissions

Information on monetizing externalities

37. UNEP has estimated that externalities could equate to more than half of companies' combined earnings.[27]

38. Therefore companies are starting to identify these externalities, both positive as well as negative and are trying to monetize them.

39. An example was BSO/Origen. From reporting year 1990 up to reporting year 1995 the Dutch enterprise BSO/Origin[28] published its their green accounts as part of its annual report. They monetized the environmental impact of using natural gas and electricity, of the road and air traffic they generated, and of

the waste and water pollution they caused, using an avoided- and replacement-cost approach. This included an elaborated overview of how they accounted for the value lost and the value added. They also took into account environmental expenditures.

40. In 2011, PUMA[29] valued the environmental impact of its direct operations and of its supply chain. PUMA divided its supply chain into four tiers (each tier goes further back into the supply chain). Some 30% of total GHG emissions, 15% of total air pollution emissions, 6% of total water abstraction quantities and 56% of total waste generation quantities were based on real data. The remaining data were generated by models.

41. For each indicator, PUMA used different methods to value the true impact, including the clean-up cost method, the 'willingness to pay' method and hedonic pricing methods. To estimate impacts on land use it used an economic input-output model that combined economic flows with environmental data. The data were collected from a number of sources, including government statistics (e.g. to identify the area occupied in the production of cattle, cotton and rubber at a state level) drawn from the U.S. Environmental Protection Agency, the U.S. Toxic Release Inventory, UK Environmental Accounts, Japanese Pollution Release and Transfer Register and Australia's National Pollution Inventory.

42. PUMA estimates that their environmental impact at EUR 145 million in 2010. Of that total, EUR 51 million was caused by land-use change for the production of raw materials, air pollution and waste generated along its supply chain. The other EUR 94 million was caused by GHG emissions and water use. Only 6% (EUR 8 million) of the EUR 145 million total derived from PUMA's core operations, such as offices, warehouses, stores and logistics, and a further 9% (EUR 13 million) occur in Tier 1, with the remaining 85% (EUR 124 million) in Tiers 2-4. Over half (57%, or EUR 83 million) of all environmental impacts were associated with the production of raw materials (including leather, cotton and rubber) in Tier 4 of PUMA's supply chain. PUMA uses these data to take focused actions to reduce their environmental footprint.[30]

Governments and stock exchanges role in promoting corporate sustainability reporting

43. Governments can play an important role in increasing corporate transparency on sustainability. For example, from reporting year 2005 the European Commission required in its Modernisation Directive, Article 46 companies of member states to the extent necessary, for an understanding of the company's development, performance or position to 'include both financial and where appropriate non-financial key performance indicators' including information on environment and employee related issues. Member states could choose to which companies this was applicable. It is expected that during 2013 this Directive will be revised to further increase transparency.

44. Governments use different instruments to promote transparency, including:

- Laws and regulations: for example, France[31] has an act requiring large companies to report on particular sustainability indicators and have them verified. Companies will have to consolidate the information for all of their subsidiaries, as long as the parent company exceeds the thresholds even for their non-French subsidiaries. Sweden requires state-owned companies to report against the GRI guidelines.[32] Chinese State-Owned Assets Supervision and Administration Commission of the State Council (SASAC) issued guidelines for mandatory disclosure by state owned companies.[33]

- Soft law: Denmark[34] has an act requiring companies to report on their sustainability policy or to explain when they have no policy why they have not such a policy. Therefore, companies can

still decide themselves whether they will develop such a policy and be transparent on the policy and performance;

- Incentives: for example, in the Netherlands, the Dutch government monitors the 500 largest companies through a benchmark, using a questionnaire to assess the transparency on sustainability. The results are published on a publicly available website.[35] This is an important driver for various companies to continuously improve their transparency.

45. These government initiatives, except for France, do not refer in detail to the indicators to report on, but often refer to the use of existing guidelines, most often the GRI guidelines (see Chapter 4).

46. In addition, stock exchanges drive transparency. In South Africa, companies listed on the Johannesburg Stock Exchange (JSE) for example are required to produce an integrated report in place of an annual financial report and sustainability report.[36] In China the Shanghai Stock Exchange (SSE) introduced two initiatives that require all listed companies to enhance their own sustainability awareness and develop a strategic sustainability plan for their operations.[37]

47. While it is not mandatory in the US, the SEC is supporting and encouraging sustainability reporting. In January 2010 the SEC issued an interpretive Guidance on Disclosure Related to Developments Regarding Climate Change.[38]

48. Governments not only promote transparency, but are themselves also an important user group of data received from companies. National statistical agencies collect data from the private sector to provide an insight into the progress made against national ambitions and strategies. The several emission trading schemes that have been established around the world provide an excellent example of how national targets cascade down to emission targets for business and how companies report through a mandatory emissions report back to governments.

Corporate reporting frameworks to support corporate accountability

Brief history

49. Various organizations are active in accounting for green growth. UNEP and UNCTAD-ISAR were most involved in developing guidance on environmental reporting and later sustainability reporting for the private sector. From 1989 onward, UNCTAD ISAR provided much groundwork[39] on environmental accounting for companies. At that time there was no guidance on environmental accounting and reporting. In addition there was a lack of understanding on and involvement in environmental issues from accountants. The work of UNCTAD-ISAR provided amongst others input for the Rio Earth Summit 1992 and the Kyoto Protocol (1997).

50. UNEP was one of the founding partners of the GRI, an international organization that developed reporting guidelines. The principles in the UN Global Compact and the OECD Guidelines for Multinational Enterprises formed important international principles for enterprises to define their strategies in the area of sustainability. The GRI has developed an overview how the GRI indicators could be used by companies to demonstrate performance against UN Global Compact and the OECD Guidelines for Multinational Enterprises.

51. Although UNCTAD-ISAR in its eco-efficiency indicators framework[40] tried to align economic and social performance it was only when the developments on integrated reporting started in 2010 that a more holistic approach on the inter-linkages between social and environmental progress and financial business performance became more visible. The International Integrated Reporting Council was

established by Accounting for Sustainability (A4S), GRI and the International Federation of Accountants (IFAC).

52. All in all, accounting in a wider context goes back over 30 years, and has evolved from environmental issues, to accounting on the ability to sustain and create value nowadays.[41]

A brief overview of current measurement and reporting frameworks relevant to support green growth

53. Reporting and accounting frameworks are necessary to determine what and how to measure, and how to report such information. They also help achieve coherence. At present, there are no internationally-agreed standards for reporting on environmental performance at company level. This leads to variations in methodologies, scope and boundaries of reported information and indicators being used.

54. Annex 1 provides an overview of the most relevant frameworks. Some of these initiatives, like the WBCSD/WRI protocol on GHG, are especially relevant in relation to consistent measurement focus on the definitions and measurement of indicators and serve as input for the frameworks that are on focused on reporting on sustainability.

55. The most well known guidelines are the *Sustainability Reporting Guidelines of the GRI*. Currently, over 4 000 enterprises around the world are using these guidelines. These guidelines can be separated into three major parts: *i)* guiding principles for defining report content, divided into content, boundary and quality principles; *ii)* the guidelines on actual report content, divided into strategic, governance, managerial and operational (i.e. indicators) disclosures; and *iii)* the protocols to guide users through important parts of the reporting process, like the indicator disclosures and the materiality analysis. Economic topics covered include for example economic performance, market presence, indirect economic impacts in the value chain, anti-corruption. Environmental topics include materials, energy, water, biodiversity, emissions, effluents, waste, transport, products and services. Social topics include for example employee related benefits, diversity, health and safety, training and development, human rights and product responsibility and society. For each of these topics different indicators have been developed and the indicator protocols include definitions and the way the data need to be compiled, as well as further references. To measure for example the CO_2 emissions the indicator protocol refers to Green House Gas measurement protocol of the WBCSD/World Resource Institute.

56. The information that is reported in a sustainability report according to the GRI guidelines does not only include quantitative indicators but also provides information on the strategy, the organizational profile, the governance processes, the stakeholder engagement processes and the management approach. This information is relevant to obtain the context in which the data are provided. Each organization has a different ambition level and specific sustainability issues and therefore reporting is different for different organizations. The topics and indicators to report on are based on a materiality analysis that the company performs. Topics that have both an impact on the organization as well as on its stakeholders are the most material and therefore are discussed in more depth in the sustainability report. Once these topics are selected the company can identify the related indicators and use the GRI protocols to measure the data. GRI has also developed different sector supplements that define more specifically for particular sectors the indicators to report on. Currently the GRI has three application levels, differing from reporting on 10 indicators with particular context information (Level C) to reporting on all material indicators (Level A). For the last one a comply or explain principle is in use. To enable readers to find the particular sustainability information in the report, GRI is using a mandatory content index table that informs the reader on what page the disclosures or the indicator can be found.

57. A more recent development is the initiation of the *International Integrated Reporting Council* (IIRC) by Accounting for Sustainability, GRI and the International Federation of Accountants. The Guidelines of the IIRC are currently in development and will be released as draft in April 2013 and finalized by the end of 2013. Integrated Reporting is defined as "bringing together material information about an organization's strategy, governance, performance and prospects in a way that reflects the commercial, social and environmental context within which it operates. It provides a clear and concise representation of how an organization demonstrates stewardship and how it creates and sustains value".

58. The guidelines include the fundamental concepts: *i)* the various capitals (financial, manufactured, intellectual, human, social and relationship, and natural) that an organization uses and affects, *ii)* the organization's business model and *iii)* the creation of value over time. The assessment of an organisation's ability to create value in the short, medium and long term depends on an understanding of the connectivity between its business model and a wide range of internal and external factors. An integrated report is based on different principles: strategic focus and future orientation, connectivity of information, stakeholder responsiveness, materiality and conciseness, reliability and completeness and consistency and comparability. Like in GRI information is provided on the organizational overview and external environment, the governance structure, opportunities and risks, strategy and resource allocation, the business model and performance and a future outlook.

Box 6. Value creation

Companies can create economic, social and environmental value through numerous activities (The IIRC, 2011, adapted):

- By providing physical goods and services to consumers and business partners, as well as through the procurement of goods and services in the supply chain and improving the sustainability aspects of those products and services. This also includes land use, buildings, equipment, systems, procedures and protocols that the organization is likely to sustain over time.
- By making available financial capital, not just to stakeholders but also to fund innovative sustainable activities.
- By enhancing employee value, for example through developing the skills and experience of employees through opportunities provided such as training, and by providing a diverse, safe and stimulating workplace.
- By creating intellectual capital. Such value can be created through invention and innovation, and by enhancing the brand and reputation that the organization has developed and is likely to sustain.
- By enhancing natural capital, through contributing to improvements in the availability and quality of natural resources, including air, water, land, biodiversity, eco-system health, and natural sources of energy.
- By building and establishing and maintaining social relationships, such as through creating customer loyalty and investor trust, and improving relationships with the community and extended networks of stakeholders.

59. The main difference with sustainability reporting is that integrated reporting is focusing on investors as key user group, is more strategic from a full company perspective and connects where possible and applicable the information provided and in relation to performance takes the full value creation process into account. Monetization is one of the tools to support integrated reporting, but is not the goal of integrated reporting. The IIRC framework does not include indicators, but refers to existing frameworks like of GRI.

60. The *Guide to Corporate Ecosystem Valuation* (CEV) aims to integrate ecosystem benefits and value in business planning and financial analysis to come to aligned business decision-making for the triple bottom-line. The first of the Guide's 5-stage methodology is explicitly named Scoping and helps the focal company to identify specific business goals and the appropriate analytical context for CEV. Stage 3 covers the valuation phase, which is further split-up in 9 sub-steps, including significance assessment and monetization.

61. The *Greenhouse Gas Protocol* mentions different methods to calculate GHG emissions, from direct monitoring concentration and flow rate to more generic emission factors. It refers to the IPCC Guidelines, which mentions different sources for country specific data, like the IPCC Emission Factor Database. Two approaches are explained for boundary setting: *i)* the equity share approach; and *ii)* the control approach. The equity share approach is based on influence: for those operations where the focal organization has an influence the GHG emissions are calculated based on ownership percentages. The control approach accounts for 100% of GHG emissions from operations over which it has control. Any operations over which the focal organization has influence, but no control, are not included.

62. In order to help business manage water more sustainably, the *Water for Business* guidance sets out an overview of water tools and initiatives organizations can use or engage with. At the same time, the guidance describes an overall water management process covering 5 stages: *i)* assessing the global and local water situations; *ii)* accounting for and understanding impacts; *iii)* identifying water risks and opportunities; *iv)* determining actions and setting targets; and *v)* monitoring and communicating performance. Step 1 sets the boundary using questions such as: how much water is available? Or what is the local demand for water? With regard to actual accounting, seven tools are mentioned useful for Step 2, with references to existing measurement methods such as BIER practical perspective on Water Accounting, GEMI Local Water Tool, and ISO Water Footprint: Requirements and Guidelines.

63. The main objective of the *Manual for the preparers and users of eco-efficiency indicators* is concerned with comparability of companies' eco-efficiency statements over time and among peers. For each of the ecological topics (i.e. water, energy, global warming, ozone-depleting substances, and waste) the manual explicitly handles scoping and measurement. However, scoping here refers to the companies that should or should not apply the manual, instead of internal scoping for measurement. The measurement sections provide broad descriptions, like 'water use should be metered', or 'water use should be reported according to volume', instead of clear measurement methods.

64. The Carbon *Disclosure Project* is concerned with improving environmental risk-management, and specifically for carbon, water, and forests. It does so by having companies fill in questionnaires about the governance, strategic directions, management and performance on their carbon, water, and forests. For methodology it refers to existing frameworks, like the Greenhouse Gas Protocol.

65. With a specific focus on investors, the *Climate Change Reporting Framework* aims to 'elicit information of value to investors in gauging how the climate change affects the strategy, performance and prospects of organizations' (Climate Change Reporting Framework, p.4). The reporting boundary to be followed for climate change and greenhouse gas emission disclosure is set parallel to the entities as reported on in the consolidated financial statements. The Framework does not specify any calculation rules, but recognizes various accounting schemes, like the Greenhouse Gas Protocol, ISO14064-1, and many other global and national schemes and guidance.

66. The *Sustainability Disclosure Framework* is new and will provide accounting standards for each of the 89 SICS industries (Sustainable Industry Classification System). Each standard will be divided into management disclosures and performance disclosures for both impact and innovation opportunities. Based on elaborate materiality analyses the most relevant sustainability impacts and opportunities are derived for

each industry. How the Framework deals with scoping and accounting for specific indicators is not known yet.

67. This brief overview demonstrates the wide variety of sources available to a company when compiling the information to report on economic, environmental and social performance.

Key concepts in measurement and reporting frameworks

68. Focusing on the key commonalities among the frameworks, three concepts stand out that underpin the most often used measurement and reporting frameworks: completeness, relevance and materiality, and comparability.

Completeness and Organizational boundary

69. The measurement and reporting frameworks describe how companies can compile a complete report, addressing all relevant topics for an organisation to be able to describe its environmental, social and economic performance. Completeness encompasses scope, boundary, and time, but also the process of data collection (e.g. does it cover all elements within the boundary set?). Scope refers to the range of topics to be covered, and boundary to the range of company areas covered when reporting on its performance towards green growth. Companies have different options. In relation to organisational boundary, for example, two distinct approaches can be followed: *i)* the equity share; and *ii)* the control approach.[42] The former assumes that equity share is the same as ownership percentage in some operation (e.g. subsidiary or joint venture). The greenhouse gas emissions from the company's operations are then counted as the percentage of the company's equity share in each subsidiary operation. With the control approach, a company accounts for 100% of GHG emissions from operations over which it has control. Operations of interest, but without control thus fall outside its scope. The CDP 2011 survey among 500 companies found that 244 companies use the operational control boundary, 103 the financial control boundary and only 17 use the equity share approach; 38 use other approaches and 98 did not respond.

70. A major difference between financial reporting and reporting on sustainability performance is that these last reports are much more transparent on the sustainability performance in the value chain.

Relevance and materiality

71. The most relevant topics to report on are those that reflect a company's significant environmental impacts or substantively influence the assessments and decisions of stakeholders. Insight into the justified information needs from users is necessary to be able to provide relevant environmental data.[43] The process for defining report content is therefore based on a materiality process that finds its basis in stakeholder engagement. Although guidance is given, in practice, companies still struggle on how to perform such materiality assessments and identify the most relevant indicators to report on. Increasingly, companies include a materiality matrix in their reports that displays on two axes the relevance of topics to the company and their relevance to stakeholders. The most relevant topics for both are discussed in more detail. The relevance for the company is, for example, addressed in relation to the direct financial impact of the topic, its relevance to the company's business strategy, and its impact on the laws and regulations with which the company must comply.

Comparability

72. The frameworks are aimed at improving comparability. Therefore they include definitions, guidance on reporting boundaries, and methods on how to measure each indicator. They also include guidance on the concept of comparability itself – e.g., that methods used to calculate data and underlying assumptions to prepare the information should be used in a consistent manner over time. If changes occur,

they must be explained transparently. This enables stakeholders to analyze changes in the organizational performance over time and supports inter-organizational comparison.

Barriers to measurement and reporting for green growth

73. Despite the developments in corporate reporting and existing guidance the increase of companies being transparent on sustainability is slower than would be needed to drive green growth. The main barriers to measurement and reporting for green growth are caused by lack of data and a rational reluctance of businesses to invest in high-quality measurement and reporting:

Barriers in relation to the data include

- *Lack of data availability* – From the different company examples it is clear that the largest impact is often not within the organisational boundary of the company, but in its value chain. As companies often have no operational control over their suppliers, it is more difficult to obtain the data. Companies are currently dependent on the willingness of their suppliers. Currently a large part is extrapolated based on the data that is available. The latter is however less robust than direct measurement.

- *Too many indicators* (reporting burden and lack of comparability) – There are many different indicators being used by the private sector. This can be explained, in part, by the fact that the companies were already reporting on environmental and social performance before there was any guidance and therefore developed their own definitions and measurement methods, which they naturally continue to use. Another reason is that laws, and the indicators they require, vary across countries. Research for example by UNCTAD-ISAR found that reporting on environmental performance differs widely among countries and organisations.[44] It appears that companies are using different metrics and different reporting boundaries – for example, in relation to CO_2 – some include transport and others do not. The fact that there are too many indicators in use not only affects comparability but also increases the reporting burden of multinational enterprises.

- *Complexity of methodology, data and data collection* – Data is not just collected from primary measurements or invoices, but some data requires further complex calculations and extrapolations. In addition there must be a thorough understanding of the organization to identify all primary sources of emissions for example. Further, especially environmental data are more difficult to interpret. This forms a barrier to a collecting the data.

- *Understandability of the impact using non-financial quantitative indicators* – Money is still the main unit to guide corporate decisions. Tonnes of CO_2 emitted, millions of liters of waste generated, thousands of square meters built on, are the kinds of non-financial units that are fairly new to the world of (strategic) decision-making. Moreover, and linked to previous barrier arguments, the complexity of green accounting and low adaptation levels make for difficult benchmarking. It might take years, even decades, before referred metrics are fully institutionalized and incorporated into daily corporate transactions.

Barriers in relation to the business rationale include

- The business case for measuring and reporting progress towards green growth is not always clear for enterprises infrastructure – Partly this is due to the fact that the benefits of environmental protection often materialize only in the long run.

- *Lack of capacity to build a strong accounting infrastructure* – So far, the larger companies report their sustainability performance. However, the majority of business (estimated around 95%) of companies worldwide are small and medium sized enterprises, being the largest part of the supply chain to larger organizations. These businesses often lack the capacity to identify, collect and reporting on their sustainability performance. One could think of a 'light' version of sustainability reporting guidance for this group.

- *Lack of fair market prices for different environmental impacts* – With no market price for common-natural resources, the incentive for companies to invest in measuring performance is weak. Measuring and reporting on activities affecting green growth is with a few exceptions still done on a voluntary basis and therefore dependent on the ambition of individual enterprises, each developing their own measurement method. Even for carbon under the Emission Trading Schemes with emissions rights often still provided for free, the market price does not reflect the restoration costs.

- *Lack of clear convergence between global goals, governmental goals and the role played by companies* – Achieving green growth is a global challenge that needs the participation of international organisations, governments and enterprises to work together on global goals and to report on it. The fact that companies have no insight in what collectively needs to be achieved to move towards green growth, impacts the business rationale to measure. This view was also reflected in a study from the Accounting for Sustainability Project (A4S).[45] When asking board members and senior management as to how they accounted for social and environmental factors they had to admit that they were not ready for such a discussion as they felt that the question of what to account for had not yet been comprehensibly answered.

Conclusions, discussion and research gaps

74. In the past various positive and negative impacts were not visible as they were not internalized but still borne by society, and therefore did not form part of economic thinking. Increasingly efforts are being developed to make these impacts more transparent and to enable better strategic decision-making. Businesses are increasingly seeing the business opportunities from green growth. In reporting a transformation towards integrated reporting, the intention is to provide in a holistic view how economic, social and environmental performance interrelate. From an investor point of view there is more interest in information on how enterprises can to sustain and improve their business performance while taking into account the wider sustainability aspects.

75. In achieving green growth we see different initiatives by business, an active participation in international forums, and an increasing focus on the full value chain. At the same time the large variety of initiatives is confusing and may hamper the developments. To really drive this agenda forward and converge further a joint public-private action is needed.

76. This may include:

- *Harmonization of accounting and reporting standards* is of relevance to enable performance against global goals for green growth to be measured, and to enable comparisons as well as to provide consistency for companies and thereby reducing the reporting burden. Both investors and business executives favor global standards on non-financial performance.[46] Participants in the World Investment Forum high-level meeting agreed that an internationally harmonised approach to climate-change reporting would be an important step towards the transition to a green economy.[47] UNCTAD-ISAR, GRI, the OECD and the CDSB are currently working in an interagency project designed to support greater consistency in the approach to the demand and

supply of corporate climate-change-related information. In moving towards greater convergence the CDSB[48] identified:

- political challenges (e.g. governments that need to align their measurement and reporting frameworks);
- technical challenges in relation to boundary setting, such as on boundaries and definitions;
- practical challenges, such as the availability of information, capacity building, design of company software and sufficient dedicated resources;
- challenges in installing mechanisms for review.

- *Governments and business to promote reporting on green growth* – There is a need for a clear tone at the top from both government and business that transparency is relevant to drive change towards green growth. In order to make progress, governments could consider regulating reporting on green growth through principle based reporting, using for example a 'comply or explain' principle and allowing companies to select from a generally accepted measurement framework the most relevant indicators for their business. After 20 years of reporting we have 6.000 companies[49] reporting and this number needs to increase to be able to achieve green growth.

- *Promote databases for the indicators relevant for insights in the sustainability performance of companies* – Such databases are a source for companies to identify the impact in the supply chain. This also prevents that especially SMEs in the supply chain are approached by different companies that need the information to calculate the footprint of their supply chain.

- *Support and promote capacity building for high quality reporting* – Universities should include in their accounting curricula as well as in the applicable courses on sustainability, environmental or social management time on how to measure performance indicators for sustainability. Measuring such indicators requires a multidisciplinary approach. Further accountancy institutes and should include courses in their continuous education for CFOs, business controllers and accountants. The same goes for continuous education courses for environmental managers.

- *Awareness building on the business case for green growth* – There is a need to support the business rationale for green growth with examples of good practices of companies that already identified this business case and are transparent on their roadmap towards a more sustainable business growth model.

- *Goals on Sustainable Development* – As a follow up from Rio+ 20 and the existing millennium development goals governments, business and NGOs are discussing "the future we want". The outcome could form the starting point for defining more clear goals and targets and therefore for governments and business to enable to set a context on how they can contribute to these global goals.

- *Better alignment of government and corporate reporting and measurement of key performance indicators* – Once clear global goals have been set, one can work towards working towards indicators that move from → global → macro → micro. In addition to the harmonisation of corporate frameworks, a further alignment in governmental frameworks needs to be realized. One solution is provided for example by the System of Environmental-Economic Accounting (SEEA).[50] It provides internationally agreed concepts, definitions, classifications, accounting

rules and tables for producing internationally comparable statistics on the environment and its relationship with the economy. The SEEA framework follows a similar accounting structure as the System of National Accounts (SNA) and uses concepts, definitions and classifications consistent with the SNA in order to facilitate the integration of environmental and economic statistics. It is a flexible system in that its implementation can be adapted to countries' priorities and policy needs while at the same time providing a common framework and common concepts, terms and definitions.

- *Provide a toolkit for monetizing the impacts* -– To improve management decision making enterprises can monetize the impacts in their full value chain. However further alignment is needed on methodologies. Although one consistent methodology will be a utopia, further alignment on the type of methodology to be used in particular circumstances could be achieved.

77. Further research is needed in relation to:

- Identifying core indicators for both the public and private sector relevant to jointly achieve green growth;

- How business can identify externalities caused;

- How harmonization of measurement and reporting can best be facilitated, including for monetizing externalities; and

- How public-private partnerships can contribute to raising awareness and commitment to green growth and the relevance of high quality reporting to measure progress.

Table 1. Table 1: Overview of main green accounting and reporting initiatives for company

	Frameworks	Initiator	Year published	Why established?	Main environmental topic(s)	Core concept(s)
Measurement frameworks	**Guide to corporate ecosystem valuation**	WBCSD	2011	To improve corporate decision-making through valuing ecosystem services	Biodiversity and ecosystem services	Ecosystem values
	GHG Protocol (Corporate Standard)	WBCSD & WRI	2001	To develop internationally accepted greenhouse gas (GHG) accounting and reporting standards for business and to promote their broad adoption. The GHG Protocol	Greenhouse gas emissions	Climate change
	Water protocol	WBCSD	2012	To identify under what method fits best under which particular circumstances	Water	
	Manual for the preparers and users of eco-efficiency indicators	UNCTAD ISAR	2004	To give guidance on how to define, recognize, measure and disclose environmental and financial information as specified within the traditional accounting and reporting frameworks; To complement and support existing reporting guidelines (e.g. the UN Sustainability Reporting Guidelines developed by the Global Reporting Initiative (GRI)).	Water, energy, greenhouse gas, global warming, ozone depletion, waste	Eco-efficiency
Reporting Frameworks	**IR Framework**	IIRC	2013	To incorporate the wide range of factors, both financial and non-financial, that determine the long-term value of a company	Natural capital	Integrated thinking, long-term value creation
	Sustainability reporting guidelines	GRI	2013	To make sustainability reporting standard practice by providing guidance and support	Materials, energy, water, biodiversity, emissions, waste	Stakeholder inclusiveness, sustainability context, materiality, completeness
	Carbon Disclosure Project	CDP	2010	To drive GHG emissions reduction and sustainable water use by organizations	Greenhouse gas emissions and water	Climate change, water use, supply chain
	Climate change reporting framework	CDSB	2010	To respond to the demand for a global reporting model that ensures fair and transparent markets and inspires confidence in reporting.	Greenhouse gas emissions	Climate change
	Sustainability Disclosure Framework	SASB	2015	To develop standards for 89 industries in 10 sectors suitable for use in providing decision-useful information in the SEC Forms 10-K and 20-F.	Sector and industry specific	Materiality

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