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# **THE ROLE OF INTEGRATED INDICATORS IN EXHIBITING BUSINESS CONTRIBUTION TO SUSTAINABLE DEVELOPMENT: A SURVEY OF SUSTAINABILITY REPORTING INITIATIVES**

EL PAPEL DE LOS INDICADORES INTEGRADOS EN LA CONTRIBUCIÓN EMPRESARIAL AL DESARROLLO SOSTENIBLE: UN ESTUDIO DE LAS INICIATIVAS PARA EL REPORTING DE SOSTENIBILIDAD

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## **ABSTRACT**

This paper aims to analyse the role of integrated indicators included in sustainability reporting initiatives in exhibiting business contribution to Sustainable Development. Content analysis of five core initiatives has been carried out to identify strong or weak sustainability arguments within the whole set of indicators. According to the findings, the analyzed initiatives raise a collection of integrated indicators that suggest managerial capture of the concept of Sustainable Development.

**KEYWORDS:** Sustainability Reporting, Integrated Indicators, Sustainable Development, Strong Sustainability & Weak Sustainability, Managerial Capture.

## RESUMEN

El presente trabajo aborda el estudio de los indicadores integrados como elemento central para conseguir que las memorias de sostenibilidad cumplan el objetivo de mostrar la contribución que una organización realiza a la consecución del Desarrollo Sostenible. Para ello se ha realizado un análisis de contenido de cinco de las principales iniciativas internacionales que las empresas pueden utilizar como guía para elaborar sus memorias de sostenibilidad con el objetivo de identificar los indicadores integrados que proponen y evidenciar cuál es la visión de la sostenibilidad que en ellos subyace. Los resultados muestran que las iniciativas analizadas plantean un conjunto de indicadores integrados que favorece que las organizaciones puedan capturar el concepto de Desarrollo Sostenible.

**PALABRAS CLAVE:** Contabilidad para la sostenibilidad, Indicadores Integrados, Desarrollo Sostenible, Sostenibilidad Fuerte y Sostenibilidad Débil, Captura Institucional

## 1 | INTRODUCTION

Recent years have seen ongoing growth in the number of sustainability reports produced by businesses (CorporateRegister.com, 2010; Kolk, 2010; KPMG, 2008), and in the academic literature dedicated to constructing theories to determine the explanatory factors (Gray, 2002). It is, however, insisted that the published reports are not genuine sustainability reports (Gray, 2006) and that there is a lack of normative research on what this type of reporting should be (Gray, 2002) if the aim is to report business contribution to or detraction from sustainability (Gray & Milne, 2004).

This study is in response to the call for normative research on the central role of integrated indicators (GRI, 2002:45) in genuine sustainability reports. Analysis of sustainable development is used to justify the need to produce and use integrated indicators that measure two or the three dimensions of sustainability (economic, social and environmental) and that relate business performance to the state of the environment.

According to the literature businesses use sustainability reports to choose the meaning and implications of sustainable development (Adams 2004; Larrinaga & Bebbington, 2001; O'Dwyer, 2003; Owen, Gray & Bebbington, 1997; Owen, Swift, Humphrey & Bowerman, 2000), thereby mitigating its power to change the status quo (LéLé, 1991). The reports, characterised by their voluntary nature, are being produced following one of the initiatives that provide guidance on disclosing sustainability information. Consequently, these initiatives may be encouraging managerial capture of the concept.

Content analysis of five of the main international initiatives on sustainability reports will be used to show their underlying vision of sustainable development by identifying the integrated indicators that they propose.

The normative nature of this research helps to improve current practice in the production of sustainability reports by proposing integrated indicators to resolve deficiencies in the proposals from international initiatives. In turn empirical analysis of these deficiencies will help to further understanding of current practice and the discourses underlying the notion of sustainability.

The work is organised in six sections. After this introduction Section 2 analyses the concept of sustainable development and the need to use integrated indicators so that businesses can correctly report on their contribution to sustainability. Section 3 analyses how integrated indicators can favour a given vision of sustainable development. Section 4 describes the study sample and the research method. Section 5 presents the results and finally the conclusions are discussed in Section 6.

## 2 | SUSTAINABLE DEVELOPMENT: ORIGIN OF THE CONCEPT AND DEFINITION OF INTEGRATED INDICATORS

The aim of sustainability reports is to inform on organisational performance in terms of its contribution to or detraction from sustainability (Gray & Milne, 2004). There is broad consensus over the need to include indicators that help to measure and compare business performance and enable visualisation of the best social and environmental practices (Grafé & Jankowska, 2001; Lamberton, 2005; McCool & Stankey, 2004). There are economic, social and environmental indicators in addition to integrated indicators, these latter being the least developed (Ranganathan, 1999; Moneva, Archel and Correa, 2006). Integrated indicators can help companies to approach the meaning of sustainable development and its implications for the way business is done more accurately, thereby helping accountants to understand what the concept of sustainable development entails (Bebbington & Thomson, 1996).

The most common definition of sustainable development is provided in the Brundtland Report which describes it as “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (UNWCED, 1987:43). This definition is widely accepted and has been adopted by the institutions that have produced the five initiatives analysed here (GRI 2006:2; ISO 2009:4; UNCTAD, 2004:5; UNEP and SustainAbility, 1994:52; WBCSD, 1997:6).

### 2.1. Systemic Integrated Indicators

According to Bell and Morse (1999) the allusion in the Brundtland Report definition to the ability of future generations to satisfy their needs implies that any activity undertaken in the present must not harm future generations. Therefore following Daly (1995) the emphasis should not be placed on the well-being of future generations but on maintaining the physical requirements necessary for them to be able to attain well-being themselves. Thus sustainable development demands the responsibility implicit in conserving and sustaining existing natural resources (Batley & Tozer, 1993) and thus proposes the concept of a system that cannot be analysed simply through business performance (Gray & Milne, 2004; Gray, 2010). The individual performance of a business (micro level) must be related to the state of its environment (macro level). This relationship appears in the definitions of sustainable development adapted to business. According to Gray (1994:33) “*a sustainable organisation is one which leaves the biosphere at the end of the accounting period no worse off than it was at the beginning of the accounting period*”, and so the aim of the information should be to focus on the state of the environment rather than the business. Even if a firm gave a full report on its economic, social and environmental performance, information would still be lacking on the extent to which the business is contributing to or detracting from the sustainability of the environment. Therefore the inclusion of economic, social and environmental indicators may be a necessary but not sufficient condition for sustainability reporting (Gray & Milne, 2004).

Thus there is a need for indicators that report on business performance linked to the state of the environment (Grafé & Jankowska, 2001). Integrated indicators can help to achieve this objective and systemic integrated indicators (GRI, 2002) are intended to do just that by measuring business performance and the state of the environment jointly (see Table 1).

When defining this type of integrated indicator two components must be mentioned: (a) business performance, and (b) state of the environment. As regards the former, we must define the organisational and operational limits of the business producing the report. According to AECA (the Spanish Association of Accounting and Business Administration) (2005) two criteria can be identified when establishing the organisational limits, one based on control (the business includes information on all the firms it controls) and another based on shareholding (the business includes information on all the firms in which it has a stake in proportion to its shareholding percentage). AECA (2005) also proposes dividing impacts into direct and indirect impacts and the business can choose whether to include only the impacts it generates (only direct impacts), or those it and the businesses it controls generate (partial inclusion of indirect impacts) or all the impacts generated by the whole life-cycle (inclusion of all indirect impacts).

According to the above options and the literature, to understand business performance, a control-based approach should be chosen to establish the limits of the business and all impacts throughout its life cycle should be included in order to determine operational limits (Archel, Fernández & Larrinaga, 2008; Bennett & James, 1998; Gray & Bebbington, 2001; Moneva et al., 2006).

As regards the second component of systemic integrated indicators, the state of the environment is defined as the state of the social, environmental and economic space where the businesses operate.

## **2.2. Transversal Integrated Indicators**

Another of the aspects to emerge from sustainable development is the need to integrate social, economic and environmental aspects in order to achieve a holistic, balanced vision (Bebbington, 2001; Sharma & Ruud, 2003). According to Gray and Bebbington (1996), the Brundtland Report definition of sustainable development should be supplemented with the terms eco-efficiency and eco-justice to show the interconnections between the different aspects of sustainability (Ranganathan, 1999).

Eco-efficiency calls on companies to achieve greater economic value with less negative environmental impact (WBCSD, 1996), thereby linking economic and environmental aspects. Eco-justice is related to the distribution of development benefits for present and future generations (Bebbington, 2001; Bebbington & Gray, 2001) linking economic aspects,

the benefits of development with social aspects and their intra- and inter-generational distribution. The term eco-justice also includes ecological considerations in the search for intra- and inter-generational equality (Birkin, 2000; Geno, 1995; Gray & Bebbington, 2000) in pursuit of social and environmental interconnection.

Giddings, Hopwood & O'Brien (2002) point out that the separation of sustainable development into three dimensions justifies focusing on one of them rather than all and minimises the interconnections between them. Thus separate analysis of economic, social and environmental dimensions can result in a distorted, poorly understood analysis (Bennett & James 1999:33).

Following Moneva et al. (2006:131-132) we determine that integrated indicators provide the easiest way of avoiding such a situation. Thus the category of transversal integrated indicators must be constructed to deal with two or three sustainability dimensions in the same indicator (see Table 1). To define this type of integrated indicator we must establish how to examine the possible interrelations between the three pillars on which sustainable development rests. This is a difficult task due to different ethical positions. According to Lamberton (1998) this interrelation can be understood from an anthropocentric or ecocentric perspective, or an intermediate, humanist perspective. The first two positions are the extreme opposites, given that in anthropocentrism human beings are regarded as central and the environment as a useful element for meeting their needs whereas in ecocentrism, humanity is on a par with any other living being. The intermediate, humanist position reflects the idea of an ecologically sustainable world that considers the needs of human beings while protecting the coexistence of species without linking it to their usefulness for humans. This approach involves protecting nature and pursuing economic and social objectives that are compatible with environmental conservation. This intermediate position is the one we adopt to understand the aspects a transversal integrated indicator needs to cover. Thus we define the three dimensions of sustainable development as follows:

- Environmental: the set of natural resources.
- Social: the set of practices designed to achieve respect for human beings. This dimension covers employment practices, respect for human rights, contribution to society and relations with the community, product liability and ethical aspects. It also covers business practices in different regions in order to evaluate whether the business is contributing to greater equality between different regions (intra-generational equity) or whether, on the contrary, it is helping to increase inequality.
- Economic: Aspects of value and wealth creation. They can be measured through: (a) monetary expressions, (b) expressions related to production levels (such as products, hours worked or kilometres) and/or (c) expressions that positively affect the amount and quality of goods and services, of customers and suppliers.

2.3. Combined Integrated Indicators

Although systemic and transversal integrated indicators enable businesses to offer a systemic and holistic vision of their sustainability actions rather than a business vision divided into aspects, an excessive focus on eco-efficiency or eco-justice actions within the company (micro level) may have the effect of encouraging unsustainability in the environment as a whole (macro level). Thus eco-efficiency achievements reduce production costs which subsequently may lead to increased demand for the product and the consequent negative impacts of production may then be greater than before (Figge & Hahn, 2004; Korhonen, 2003).

The statement “*Eco-efficiency is irrelevant in the face of declining eco-effectiveness*” implies the inclusion of a third term in the analysis: eco-effectiveness (Gray and Bebbington, 2000:6). This concept encourages businesses to reduce their global ecological footprint and so the eco-efficiency of businesses must be analysed in connection with the ecological impact on the environment. Combined integrated indicators are proposed so that businesses can report on this aspect. This last type of integrated indicators combine aspects of transversal integrated indicators (eco-efficiency and eco-justice) with aspects dealt with by systemic integrated indicators (business performance in relation to the environment). They can be defined jointly following the indications proposed for the two types of integrated indicators they combine.

Table 1 summarises the implications of sustainable development for businesses reporting on sustainability and the type of integrated indicator proposed to deal with them.

TABLE 1.- SUSTAINABLE DEVELOPMENT AND INTEGRATED INDICATORS

IMPLICATIONS FOR REPORTING	NEED FOR INTEGRATED INDICATORS	EXAMPLES OF INTEGRATED INDICATORS
Vision of the system and not only the firm (consider the needs of future generations by conserving the state of the environment)	Systemic Integrated Indicators	% of tree cut down due to firm’s paper consumption
Holistic, balanced vision of the three dimensions (complete the concept of sustainable development with eco-efficiency and eco-justice)	Transversal Integrated Indicators	CO2 emission per total employees
Combine vision of the system and holistic vision (sustainability implies ensuring aspects of eco-efficiency, eco-justice and eco-effectiveness for present and future generations)	Combined Integrated Indicators	Lowest salary in the firm compared to the lowest salary in the sector



### 3 INTEGRATED INDICATORS AND MANAGERIAL CAPTURE

The literature has coined the term “managerial capture” or “institutional appropriation” to refer to the process by which firms select the meaning and the implications of sustainable development (Adams, 2004; Larrinaga & Bebbington, 2001; O’Dwyer, 2003; Owen et al., 1997; 2000). Thus, firms commit to activities designed to reduce current levels of unsustainability but focus mainly on eco-efficient activities that they can control more easily (Bebbington & Gray, 2001), involve technological solutions and do not require them to change their current business practice (Bennett & James, 1999). This scenario is known in the literature as weak sustainability and is the result of the ambiguous definition of sustainable development.

This ambiguity also gives rise to the opposite scenario of strong sustainability. These extreme scenarios are on a continuum that represents the different positions that can be adopted as regards sustainable development (Bebbington & Thomson, 1996). Weak sustainability moves within the status quo, mainly seeking to maintain the human species and Western civilisation in particular with a predominance of environmental aspects over social aspects. It is an optimistic vision which considers that the current situation is almost sustainable. The opposite extreme, strong sustainability, defends positions that challenge the current status quo, in a commitment to sustain all living beings, requiring a reconsideration or even abandonment of the current model for economic growth as the dominant goal and assuming that we are far from being sustainable.

As Callens and Wolters (1998) have already noted, the problems of current unsustainability are systemic and multidimensional, so integrated indicators can play a key role in encouraging a business to choose a given position in relation to sustainable development. Thus some integrated indicators will favour a notion of strong sustainability while other are aligned with the notion of weak sustainability.

Based on Gray & Bebbington’s (1996) classification of the different social and environmental reporting techniques in relation to their proximity to notions of strong or weak sustainability and their allusion to aspects of eco-efficiency or eco-justice, Table 2 shows a similar distribution of the themes for which integrated indicators could be useful.

TABLE 2.- CLASSIFICATION OF ASPECTS THAT CAN BE COVERED BY INTEGRATED INDICATORS

IMPROVEMENT WITHIN CURRENT ECONOMIC ORTHODOXY (REDUCING UNSUSTAINABILITY/"WEAK SUSTAINABILITY")	
ECO-EFFICIENCY ASPECTS	ECO-JUSTICE ASPECTS
Environmental efficiency	Distribution of economic value
Aspects of financial reporting (contingent liabilities, assets, expenditure and revenue)	Reporting on employee relations
Inclusion of environmental aspects in the valuation of investments	Reporting on customer relations
Comparison of best practices or average values for the sector or region	Reporting on supplier relations
	Reporting on community/society relations
	Comparison of best practices or average values for the sector or region
RECOGNITION OF SUSTAINABILITY DEMANDS ("STRONG SUSTAINABILITY")	
ECO-EFFICIENCY ASPECTS	ECO-JUSTICE ASPECTS
Environmental impact measurements	Social impact measurements
Internalisation of costs (calculation and reporting of environmental externalities/Complete Costs Accounting)	Internalisation of costs (calculation and reporting of environmental externalities/Full Cost Accounting)
Environmental performance using life-cycle evaluation	Environmental performance using life-cycle evaluation
Measures of significance in global environmental problems	Equality/inequality measurements of environmental surrounding between regions
	Economic equality/inequality measurements
	Social equality/inequality measurements
	Measures of significance in global social problems
	Reporting on corruption
	Reporting on corporate governance
	Reporting on human rights

First of all, we note the integrated indicators that favour the notion of weak sustainability. Thus, the economic and environmental transversal integrated indicators that deal with simple aspects of environmental management such as (a) efficient management of waste generation, pollution and the use of environmental resources, (b) aspects of financial and

environmental reporting, and (c) the consideration of environmental aspects in assessing investments are focused towards a vision of weak sustainability because they are part of the current status quo.

The social and economic transversal integrated indicators that represent (a) relations with the different participants (for example, indicators that measure employment conditions for employees and compliance with obligations to customers and suppliers), (b) financial measurements of social performance such as distributions of economic value generated by the business (added value status) and, (c) analysis of the indirect and direct economic impacts on the main participants, also favour a vision of weak sustainability.

Systemic integrated indicators that favour the notion of weak sustainability are those that compare business performance with best practices in the environment or with average values for the sector or region, to show how far the business is removed (for better or worse) from the current situation, considered adequate according to this notion of sustainability. If business performance is measured transversally, a combined integrated indicator is used which, as with the systemic integrated indicator, also favours the notion of weak sustainability.

In contrast, integrated indicators that favour the notion of strong sustainability include transversal integrated indicators designed to represent economic assessments of external environmental costs. These indicators are the result of applying Full Cost Accounting, which has emerged to overcome the limitations of conventional accounting of not valuing what does not affect the company's net worth. Although the use of this technique represents significant progress, given that it considers external costs as information to be processed (Deegan, 1999), to come under the notion of strong sustainability infinite values must be assigned to certain natural resources considered as critical (Gray, 1993) so that they comply with the premise of rejecting the exchange of said resources for others created by humans (Chiesura & De Groot, 2003; Ekins, Simon, Deutsch, Folke & De Groot, 2003; Jamieson, 1998).

Transversal integrated indicators that measure performance in different phases of the life-cycle analysis are also appropriate for the notion of strong sustainability as they increase business responsibility in comparison to traditional accounting.

Similarly, the following are also integrated indicators of strong sustainability (a) social and economic transversal indicators of economic and social differences between people and (b) those that show greater transparency in aspects such as the fight against corruption, corporate government practices and respect for human rights.

Systemic integrated indicators focused on the strong sustainability perspective include indicators that report on how the environment is being modified or which show the relevance of the business in relation to major global problems (deterioration of natural resources and economic and social inequalities).

And finally, combined integrated indicators that favour the notion of strong sustainability are those designed to show inequalities of an environmental or economic and social nature that occur in the different regions of the world. Also included here are combined indicators intended to report on sustainable cost (calculation of the cost involved in not leaving the biosphere in a worse state than it was at the start of the accounting period).

Therefore, the use of certain integrated indicators rather than others will encourage businesses to show performance based on a weak or strong view of sustainability. However, companies commonly produce their sustainability reports following the guidance proposed by one of the sustainability accounting initiatives. On the basis of this premise, the initiatives are playing a significant role in favouring the process of managerial capture of the concept and implications of sustainable development if their guidelines provide indicators aligned with the notion of weak sustainability.

In this regard, previous studies have concluded that some of the main institutions that propose initiatives used by businesses as guidance for producing sustainability reports favour the weak vision of sustainability and therefore are contributing to the managerial capture of the meaning and implications of sustainable development. Thus it has been concluded that (a) ISO standards mainly deal with aspects that are easy for businesses to control (Bennett & James, 1999; Gray & Bebbington, 2001; Larrinaga, 1999) ; (b) the WBCSD uses the term sustainable development focusing on aspects that companies can control (Gray, 2001; Mebratu, 1998; Rikhardsson & Welford, 1997; Springelt, 2003; Welford, 1998), from a weak sustainability perspective (Gray & Bebbington, 2000; Hopwood, Mellor & O'Brien, 2005) ; (c) GRI has not got to grips with the issue of sustainability reporting (Hibbit, 1999; Gray 2006; 2010; McElroy, Jorna & van Engelen, 2008), and the 2002 version is closer to the notion of weak sustainability (Moneva et al., 2006); and (d) UNCTAD, by trying to apply generally accepted traditional accounting principles to environmental and social aspects, has not managed to recognise all the issues that these aspects require (Gray & Bebbington, 2001).

The following section lists the initiatives analysed in order to identify the integrated indicators they propose and their distribution along the strong sustainability or weak sustainability continuum.

## 4 | RESEARCH METHOD.

### 4.1. Sample

Within the possible population of initiatives that provide guidelines for improving sustainability information, where initially 22 were identified, the following requirements were applied in order to focus the analysis on the object of study:

- A set of indicators must be provided, given that this is the element we want to identify.
- They must address corporate reporting, and therefore do not include initiatives directed at macroeconomic information.
- They must focus on social, environmental and/or sustainability reporting, excluding all initiatives focused on economic and financial reporting.
- They must be directed at any type of company, regardless of sector, region or size.

After applying these requirements the 5 initiatives that finally make up the sample enable us, through content analysis, to evaluate the set of indicators proposed for sustainability reports. These initiatives and some of their characteristics can be seen in Table 3.1. The initiatives that were excluded for not meeting the proposed requirements are shown in Table 3.2.

TABLE 3.1.- INITIATIVES IN THE ANALYSIS

NAME OF THE INITIATIVE	YEAR ISSUED	PROMOTING BODY	PROPOSED SCHEME
Fifty ingredients of environmental reporting	1994	United Nations Environment Programme (UNEP) & SustainAbility	Identifies 20 basic common elements as minimum requirements for inclusion in any sustainability report. Proposes 30 additional elements. For each element is supplies a set of indicators by way of example
ISO 14031. Environmental performance evaluation	1999	International Organization for Standardization (ISO)	Proposes a set of indicators to evaluate environmental performance. The proposal is illustrative and does not represent a complete or exhaustive list
Measurement Eco-efficiency. A guide to reporting company performance	2000	World Business Council for Sustainable Development (WBCSD)	Proposes a list of indicators that attempt to summarise a firm's eco-efficiency profile. They are differentiated between general and specific
Sustainability reporting guidelines (version G3)	2006	Global Reporting Initiative (GRI)	Proposes a series of principles and guidelines for sustainability reports. It presents a total of 79 indicators differentiating between core and additional
Guidance on corporate responsibility indicators	2008	United Nations Conference on Trade and Development (UNCTAD)	Proposes a total of 21 indicators and guidelines for identifying those which are key for a wide range of users

TABLE 3.2.- EXAMPLES OF INITIATIVES NOT SELECTED FOR ANALYSIS.

INITIATIVE	SCOPE OF THE INITIATIVE	REASON FOR EXCLUSION
AA1000 (AccountAbility, 1999)	Social and ethical accounting, auditing and reporting	No set of indicators
SA8000 (SAI, 2001)	Social responsibility and employment practices	No set of indicators
The Practical Guide to the United Nations Global Compact Communications on Progress (United Nations Global Compact, 2008)	Communicate progress toward Global Compact principles	Indicators are from the GRI
The OECD Guidelines for multinational Enterprises (OECD, 2000)	Responsible behaviour from multinational enterprises	No set of indicators. For multinational enterprises
Policies to enhance Sustainable Development (OECD, 2001)	National sustainable development policies	Macroeconomic information
Indicators to measure decoupling of environmental pressure from economic growth (OECD, 2002)	National indicators of the connection between “economic development” and “environmental degradation”	Macroeconomic information
Indicators of Sustainable Development: Guidelines and Methodologies (UN, 2001)	National sustainable development indicators	Macroeconomic information
Health, Safety and Environmental Reporting Guidelines (CEFIC, 1998)	Health, safety and environmental reporting	For European Chemical enterprises
Compendium of Sustainability Reporting Practices and Trends for the Oil and Gas Industry (IPIECA and API, 2003)	Sustainability reporting	For gas and oil companies
Guide to environmental and energy reporting and accounting (ACCA, 1997)	Environmental reporting	For firms in the UK
Environmental Reporting: General Guidelines (DEFRA, 2001)	Environmental reporting	For firms in the UK
Indicators that count. Social and environmental indicators (Business in the Community, 2003)	Indicators for social and environmental reporting	For firms in the UK
A Framework for Public Environmental Reporting (Environment Australia, 2000)	To facilitate and stimulate voluntary environmental reporting	For Australian firms
Guía de Indicadores Medioambientales para la empresa (IHOBE, 1999)	Environmental management	For SMEs in the Basque Country
EMAS (CE, 2001)	Environmental management and auditing system	For firms in EU countries
Documentos de la Comisión de Responsabilidad Social Corporativa de AECA (2004, 2005, 2010)	Guidelines on Corporate Social Responsibility and information	For Spanish firms
Company Environmental Reports: Guidelines for preparation (FEEM, 1995)	Environmental reporting	No set of indicators

## 4.2. Content analysis

Content analysis was used to identify the integrated indicators provided by the initiatives. This technique, widely used in social and environmental accounting research (Parker, 2005; Thomson, 2007), enables reproducible inferences to be formulated that are valid in their context (Krippendorff, 1990).

According to Milne and Adler (1999) content analysis requires two activities: the production of a classification scheme and the design of a set of rules on how to codify, measure and record. Although the first activity is usually problematic (Gray, Reza & Lavers, 1995), the conceptual framework used to define the concept of integrated indicator considered in Section 2 facilitated the process. With regard to the second activity, each indicator must be classified as “integrated” or “not integrated”. When an indicator has been identified as “integrated” it must be included within one of the possible existing types: transversal, systemic or combined.

In order to confirm reliability, codification was carried out at different moments in time to ensure stability of the results and by different codifiers to ensure reproducibility (Krippendorff, 1990). The stability analysis gave a Krippendorff Alpha of 84% and 76% for reproducibility. According to Milne and Adler (1999) both values guarantee the reliability of the study in accordance with the thresholds in the literature, and reliability was reinforced as all the discrepancies identified by both codifiers were resolved.

## 5 ANALYSIS OF THE RESULTS

Table 4 shows the results of the content analysis. The initiatives analysed provide a total of 503 indicators, of which 47% (237 indicators) are considered integrated according to the definitions presented above.

Only 15% of the integrated indicators (36 in total) meant duplicity, either because the same indicator was present in various initiatives or because an indicator measured the same aspect using different expressions in different initiatives. This low number of duplicities shows the lack of consensus on integrated indicators.

TABLE 4.- CODIFICATION OF INDICATORS PROVIDED BY THE INITIATIVES ANALYSED

Type of indicator		INITIATIVES					Total	Total without integrated indicator duplicities
		Fifty ingredients	ISO 14031	WBCSD	G3-GRI	UNCTAD 08		
No integrated indicator		114	64	42	43	3	<b>266</b>	
Systemic	Economic	0	0	1	0	0	<b>1</b>	<b>1</b>
	Environmental	7	0	0	5	0	<b>12</b>	<b>11</b>
	Social	0	0	0	1	0	1	1
Transversal	Economic and environmental	29	27	97	6	5	<b>164</b>	<b>137</b>
	Environmental and Social	5	10	0	0	0	<b>15</b>	<b>15</b>
	Economic and Social	3	0	1	23	13	<b>40</b>	<b>32</b>
	Triple	1	2	0	0	0	<b>3</b>	<b>3</b>
Combined	Economic and environmental	0	0	0	0	0	<b>0</b>	<b>0</b>
	Environmental and Social	0	0	0	0	0	<b>0</b>	<b>0</b>
	Economic and Social	0	0	0	1	0	<b>1</b>	<b>1</b>
	Triple	0	0	0	0	0	<b>0</b>	<b>0</b>
Total Integrated Indicators		<b>45</b>	<b>39</b>	<b>99</b>	<b>36</b>	<b>18</b>	<b>237</b>	<b>201</b>
Total Indicators		<b>159</b>	<b>103</b>	<b>141</b>	<b>79</b>	<b>21</b>	<b>503</b>	

Discounting the duplicities in the content analysis, a total of 201 indicators were identified. Most of the initiatives developed transversal indicators which represent 93% of the total (187 indicators). The remaining 7% is distributed between systemic indicators (13) and only one combined indicator.

Table 5 shows the classification of the 201 indicators according to the notion of sustainability they favour and if they deal with issues of eco-efficiency or eco-justice in order to provide evidence of whether the indicators proposed by international initiatives are favouring managerial capture of the meaning and implications of sustainable development.



TABLE 5.- CLASSIFICATION OF INTEGRATED INDICATORS BY ASPECTS DEALT WITH

IMPROVEMENT WITHIN CURRENT ECONOMIC ORTHODOXY (REDUCING UNSUSTAINABILITY/"WEAK SUSTAINABILITY")	
ECO-EFFICIENCY ASPECTS	ECO-JUSTICE ASPECTS
Environmental efficiency 97	Distribution of economic value 1
Financial reporting aspects 18	Employees 22
Inclusion of environmental aspects in the valuation of investments 0	Customers 2
Comparison with sector/region: 0	Suppliers: 0 Society: 17
Others: 5	Comparison with sector/region: 0
<b>TOTAL: 120</b>	<b>TOTAL: 42</b>
RECOGNITION OF SUSTAINABILITY DEMANDS ("STRONG SUSTAINABILITY")	
ECO-EFFICIENCY ASPECTS	ECO-JUSTICE ASPECTS
Impacts on the environment: 11	Impacts on the environment: 0
Internalisation of costs: 1	Internalisation of costs: 0
Evaluation of life-cycle: 16	Evaluation of life-cycle: 0
Relevance of global problems: 0	Environmental inequalities: 1
	Economic inequalities: 2
	Social inequalities: 1
	Relevance of global problems: 0
	Corruption: 3
	Corporate Governance: 0
	Human Rights: 3
<b>TOTAL: 28</b>	<b>TOTAL: 10</b>

\* The systemic economic indicator is also codified within weak sustainability (market share) even though it is not related to eco-efficiency or eco-justice.

A total of 163 indicators (81%) are classified within the notion of weak sustainability, of which 74% deal with eco-efficiency aspects. The remaining 19% (38 indicators) focus on strong sustainability demands and in this case are also biased towards eco-efficiency aspects (28, compared to only 10 that deal with aspects of eco-justice).

Below is an in-depth analysis of the distribution of the indicators, showing the contributions made by the initiatives analysed and highlighting any absences that should be dealt with.

*Integrated indicators that promote the notion of weak sustainability and deal with aspects of eco-efficiency*

This quadrant is the most productive of the four with a total of 120 indicators of which 81% (97 indicators) are for environmental efficiency. The number is high because they measure the same environmental aspect with different economic parameters. In fact, use of a single economic parameter would reduce the 97 indicators to 27.

The remaining 23 indicators in this quadrant measure financial and environmental aspects (15% with 18 indicators), and they are focused in various areas such as (i) waste management, (ii) time used to correct environmental incidents, (iii) time used for preventive maintenance of equipment and (iv) percentage of products covered by environmental management programs.

Despite this development there are absences in relation to (a) the emission of smells and noise in the case of environmental efficiency, (b) environmental rights (such as greenhouse gas emission quotas) and (c) the inclusion of environmental aspects when assessing investments. These absences are joined by the development of indicators that enable comparison of the measures from the initiatives with the sector or region.

*Integrated indicators that promote the notion of weak sustainability and deal with aspects of eco-justice*

A total of 42 indicators were classified in this quadrant. The most productive subject areas were employees and society with 22 and 17 indicators respectively.

The indicators for the relation between the firm and its employees cover a very wide range of subject areas that can be divided into three groups concerning (a) economic aspects (b) environmental aspects and (c) both aspects simultaneously.

The first group includes indicators that deal with (i) number of employees according to various characteristics such as type of contract, region, sex or rotation; (ii) employee training; (iii) salaries and social benefits; and (iv) health and job security. In the second group the indicators show employees in jobs with an environmental content, their training and the environmental initiatives they propose. The third group includes an indicator for measuring the percentage of employees who obtain rewards in relation to the total number of employees who participate in the company's environmental programs.

There are also three groups of indicators for society. In the first group, related to economic aspects, the initiatives propose indicators intended to report on (i) indirect economic

impacts, (ii) contribution to the State with payments made and reception of subsidies, (iii) the cost of sanctions for breach of legal requirements, (iv) contribution to the State's balance of trade, with import and export figures, and (v) donations and investments in infrastructures and services for the local community. The second group which is related to environmental aspects includes indicators intended to inform on (i) water consumption for social purposes such as sanitation and (ii) company participation and promotion of environmental initiatives in the local community. The third group, where society is related to economic and environmental aspects, includes indicators for measuring participation and promotion of environmental initiatives in monetary terms. One indicator has also been identified that is intended to measure effective management and evaluation of social impacts on the local community.

The three remaining indicators classified in this quadrant are designed to report on the firm's relations with its customers (dealing with aspects such as satisfaction and fines) and on the distribution of the value generated by the firm. Gallizo (2007) criticises the fact that this last indicator differs from traditional value added status proposals by considering suppliers as additional participants in the distribution of value generation and does not measure management of the firm. In contrast the initiatives' proposal is more in accordance with the objective of a sustainability report as it lists the destination of customer revenue among the different participants (employees, State, local community, financial entities and suppliers).

In this quadrant there are also absences and deficiencies in the aspects developed so far. Absences include the lack of indicators on the firm's relations with its suppliers in terms of satisfaction or breach of contract. There is also a lack of indicators, already identified in the previous quadrant, that permit comparison of the measures dealt with by the initiatives with the sector or region. Although indicators for aspects related to employees and society have been developed, they could be improved by considering others that measure (i) the relationship between employees who receive environmental training courses and the entire staff and (ii) resources that the firm receives from the environment, such as the cost of the public services received, tax benefits or subsidies from private organisations, in order to balance out the high number of indicators for the firm's contribution to society.

*Integrated indicators that promote the notion of strong sustainability and deal with eco-efficiency aspects*

The indicators close to the strong sustainability vision also show a bias towards eco-efficiency aspects just like those in the weak vision. Thus a total of 28 indicators are classified in this quadrant in which aspects such as life cycle evaluation, with 16 indicators, and impacts on the environment, with 11 indicators, have the most proposals. The remaining indicator addresses the internalisation of costs.

Indicators related to life cycle evaluation focus above all on measuring suppliers' environmental performance. The high number of indicators in this area is influenced by the use of up to six economic parameters related to the indirect emission of greenhouse gases<sup>1</sup>. Other indicators in this area are those intended to measure (i) water and energy consumption during use of the product, (ii) recovery of materials and recycling of the product after use, (iii) the useful life of the product and (iv) investors who value environmental issues.

Thus in this quadrant there is a need for greater development of indicators that measure the environmental performance of suppliers in relation to all the firm's suppliers to offer information beyond the firm's legal limits.

Although the initiatives include an indicator for internalising costs, it is too generic and requires further development because it does not indicate how to make the calculation and so firms could attach a valuation closer to the notion of weak sustainability. Furthermore, the 11 indicators for impacts on the environment do not show the valuation of the economic effort needed to restore the environment, so the indicators proposed by the initiatives do not encourage firms to show the sustainable cost demanded by Gray (1994).

Finally, another weak point in this quadrant is the absence of indicators that measure significance in relation to global environmental problems such as, "percentage of greenhouse gas emission quotas over the total for the region/sector" or "percentage of natural resource consumption over the total for the region/sector".

*Integrated indicators that promote the notion of strong sustainability and deal with aspects of eco-justice*

This quadrant is the least developed of the four with only 10 indicators spread over different issues.

One of the issues is information transparency in the fight against business corruption. Three indicators have been proposed that inform on (i) firm contributions to political parties, (ii) fines for breach in matters of business corruption and (iii) the percentage of employees trained in anticorruption policies and procedures.

Another of the topics is respect for human rights in the firm's various decisions. Another three indicators are included here to report on the inclusion of respect for human rights in (i) company investment, (ii) analysis of suppliers and (iii) employee training.

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(1) As indirect greenhouse gas emissions, the initiatives' proposal requires information on the emissions produced by energy supply companies as a consequence of the direct consumption of energy generated within the firm's boundaries.

Two indicators are proposed to deal with economic inequalities which arise when distributing wealth. One is useful for reporting on the breakdown by regions of the ratio between the lowest salary in the firm and the legal minimum and the other to report on the salary ratio between men and women.

The two remaining indicators are also intended to report on inequalities, one on environmental matters and the other on social matters. The first reports on the number of projects the firm has undertaken in countries with less stringent norms on environmental impacts, informing users about the extent to which a company is using globalisation and reduced tariffs to evade environmental regulations. The second provides a breakdown by region of work accident rates (measured by frequency, gravity and days lost) helping users of the information to verify the extent to which a company is fighting different life expectancies in different regions of the world.

Despite the development of these indicators on inequalities in the economic, environmental and social sphere, additional indicators are needed to deal with strong sustainability problems. In the economic sphere, there are absences concerning the price of transferring and acquiring resources, itemised by regions which would help to highlight how added value is generated in the different phases of a product. In the environmental sphere, indicators must be developed that report on the differences in the different regions of the world of impacts on the environment due to pollution and resource consumption in order to show unequal distribution. Finally, in the social sphere, indicators must be developed that present a country by country breakdown of (i) the impacts of the company on its social environment and (ii) the significance of its activity on global social problems (immigration, literacy, access of those most in need of different services, for example).

In addition to these absences related to inequalities, there is also a need for indicators that help firms to report on (i) the social performance of suppliers and customers and (ii) the internationalisation of the social costs the company is generating in the environment, provided valuations in accordance with the notion of strong sustainability are adopted.

## 6 DISCUSSION AND CONCLUSIONS

This work responds to Gray's (2002) call to channel research towards what sustainability reporting should be so that it can comply with its aim of reporting on business performance in terms of contributing or detracting from sustainability (Gray & Milne, 2004).

This study shows that integrated indicators are an efficient means of resolving the gaps identified by content analysis in the international initiatives, justifying their use as a necessary condition for companies to improve their practice in producing sustainability reports. In turn,

the gaps detected help to interpret the underlying discourse on sustainability in the initiatives.

Through analysis of the requirements emerging from the concept of sustainable development this study concludes that a genuine sustainability report must comply with the following necessary conditions: it must provide (a) a vision of the system, (b) a holistic, balanced vision and (c) the relationship between both visions. It must also deal with aspects defended by the notion of strong sustainability.

A sustainability report can comply with these conditions by using integrated indicators. Thus systemic integrated indicators will provide information on the impact on the environment but not on a firm's performance in isolation; transversal indicators are designed to show the interconnections of economic, environmental and social aspects which, if they were to remain hidden, could distort the image of the real situation. Combined indicators show how these interrelationships must be connected to the environment in order to achieve sustainability.

However, sustainability reports require integrated indicators to help firms deal with aspects aligned with strong sustainability arguments. Like certain accounting techniques integrated indicators classified within the vision of weak sustainability favour a firm's progress towards sustainability, but indicators in the strong sustainability category are the most appropriate for the purpose (Bebbington & Thomson, 1996).

This work provides evidence of managerial capture, noted in Section 3 through a content analysis of five of the main international initiatives on sustainability reports. This procedure, in addition to updating previous studies with the latest versions of the initiatives, supplies evidence on the set of initiatives based on reproducible inferences provided by the resulting data. The fact of focusing the analysis on integrated indicators helps to detect absences and issues pending development which could be met by other additional indicators to those proposed in the initiatives.

The results show the deficiencies in the indicators that measure the conditions necessary for a sustainability report. Thus the low number of systemic integrated indicators makes it difficult to provide a system vision that, according to Gray and Milne (2004), a sustainability report needs to focus on the impact on the environment rather than on the firm's performance in isolation. There are many transversal integrated indicators that would enable a holistic vision of the three dimensions of sustainability and their interconnections. However, although the high number of economic and environmental indicators, together with systemic indicators, means that various aspects of eco-efficiency are covered, the absences of eco-justice aspects mean that the vision cannot be considered holistic and balanced. The detection of a single combined integrated indicator suggests that the aim of combining a systemic and holistic vision (which as Bebbington (2001) points out is necessary in the concept of sustainable development) is not being achieved. Most of the indicators identified cover aspects of weak

sustainability. Thus more indicators need to be developed which (a) broaden company responsibility by measuring performance through life cycle analysis (especially eco-justice aspects); (b) internalise external environmental and social costs; and (c) measure how the company is increasing/reducing the problems with the current system at global level (such as the exhaustion and deterioration of natural resources and economic and social inequalities).

It could be argued that the initiatives do not propose certain indicators for strong sustainability because they are very difficult to measure, as according to Bennet & James (1998:74) data for evaluating life cycle is difficult to collect. However, the initiatives, unlike firms do not have to deal with the process of gathering information and measuring performance and so they can be criticised for being self-limiting because of potential problems which might appear in the process, thereby sacrificing the issues necessary for genuine sustainability reporting. As relevant aspects are not included and as the standards are easy for firms to achieve given the simplicity of what is to be measured and the uncompromising nature of the information required, the risk is that the initiatives are encouraging reports that do not discharge accountability (Gray & Milne, 2004:72).

These results suggest a vision of sustainability comparable to the vision of environmental management. That vision involves avoiding ethical and political concerns associated to aspects of eco-justice and enables companies to make economic savings by managing environmental aspects related to eco-efficiency (Bebbington & Gray, 2001; Gray & Bebbington, 2001). The fact that the initiatives analysed are biased towards weak sustainability aspects has contributed to a rapid institutionalisation of social, environmental and sustainability reporting, ignoring the need proposed by sustainable development to change the status quo (Gray, 2001). According to Hibbitt (1999) if sustainability accounting does not make visible the tension between capitalism and the planet's ability to bear the load, it is supporting the status quo and this situation is a crucial impediment to any real progress (Gray & Milne, 2004).

Therefore, although the initiatives have explicitly adopted the definition of sustainable development in the Brundtland Report, the consequences and challenges of that definition have not been internalised because the initiatives only cover aspects of weak sustainability thereby favouring managerial capture and consequently dashing the expectations that were generated when the report was published.

The results of this study invite reflection on the social responsibility that initiatives must assume in order to achieve greater consistency between the guidelines they offer and the implications of sustainable development. In this regard, there is a need to either adopt a focus closer to the notion of strong sustainability or assume, on the contrary, that its current direction facilitates Triple Bottom Line reports rather than genuine sustainability reports. This approach would avoid the assimilation of both types of reports and ultimately, the managerial capture of sustainable development.

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