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Gerged, A.M., Cowton, C.J. and Beddewela, E.S. (2018) Towards sustainable development in the Arab Middle East and North Africa region: a longitudinal analysis of environmental disclosure in corporate annual reports. *Business Strategy and the Environment*, 27 (4). pp. 572-587. ISSN: 0964-4733

<https://doi.org/10.1002/bse.2021>

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Towards Sustainable Development in the Arab Middle East and North Africa Region: A Longitudinal Analysis of Environmental Disclosure in Corporate Annual Reports

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ABSTRACT

This paper presents the first comprehensive analysis of corporate environmental disclosure in the Arab Middle East and North Africa region. Using a detailed research instrument containing 55 items, content analysis of the annual reports of 180 non-financial companies listed on nine major stock markets was conducted over a 5-year period. The calculation of an unweighted disclosure index indicates that, although the level of disclosure might be considered relatively low by international standards, it varies by country. Perhaps of greater significance for the future of sustainable development in the region, disclosure is shown to have increased significantly over the period 2010–2014. Further analysis shows that although there are some differences relating to categories of disclosure, this is a region-wide phenomenon not driven by a subset of countries or types of company. This benchmark study provides a systematic picture for policy-makers in the region and, for future researchers, both substantive findings and methodological insight. © 2017 The Authors. *Business Strategy and the Environment* published by ERP Environment and John Wiley & Sons Ltd

Received 27 April 2017; revised 30 September 2017; accepted 12 October 2017

Keywords: Arab MENA region; content analysis; corporate environmental disclosure (CED); emerging markets; environmental disclosure index (EDI); MENA region; sustainable development

Introduction

THE ACADEMIC DEBATE IN THE BROAD AREA OF SOCIAL ACCOUNTING, WHICH BEGAN IN THE 1960S AND EARLY 1970S, WAS INITIALLY addressed through corporate social disclosure (CSD) (Gray *et al.*, 1996), moving to a focus on corporate environmental disclosure (CED) in the 1990s (Gray, 2006). This shift in focus was mainly due to the phenomenon of the ‘Green Revolution’, a global concern for the environment and sustainable development, reflected in increased activism and the enactment of international and domestic legislation (Lodhia, 2001). Companies, at least in developed countries, were encouraged or compelled to disclose their environmental performance,

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sometimes based on arguments reiterating its positive impact on the overall performance of enterprises resulting from reduced costs and higher revenue (Birkin and Jørgensen, 1994; Adams *et al.*, 1995; Gray *et al.*, 1995; Mathews, 1997; Lena *et al.*, 2007; Martin and Hadley, 2008; Cormier and Magnan, 2015). CED remains an important element of disclosure that offers a more holistic view of a company's activities and impact than does conventional financial reporting (Cerin, 2002).

An early definition of CED offered by Gray *et al.* (1987: ix) describes it as 'the process of communicating the environmental effects of organisations' economic actions to particular interest groups within society and society at large'. Implicit in this definition is the idea of different stakeholders or information user groups. It also focuses on the effects or consequences of an organization's actions. However, not all definitions possess these features, and several other definitions of CED have been proposed over time (see Fun, 2002; Berthelot *et al.*, 2003; O'Dwyer *et al.*, 2005). A further issue relates to the basis for disclosure. For example, the Institute of Chartered Accountants in England & Wales (ICAEW) refers to CED as being related to the 'voluntary provision of information about firm performance in relation to the broader area of corporate environmental practices' (Islam, 2009: 15, emphasis added). However, while the question of whether disclosure should be left to companies' voluntary initiative – albeit under pressure from various sources – or required on some mandatory basis is a significant one, when analysing disclosure practices across different countries, where regulations might differ, it would be inappropriate (and sometimes difficult) to remove from the analysis of overall disclosure those elements that just happened to be required in one country rather than another. Moreover, even mandatory disclosure tends to leave considerable scope for companies to determine what and how to disclose – not to mention whether they actually follow the requirement. Finally, although the traditional emphasis in studying CED has been upon corporate annual reports or, perhaps, separate environmental reports, the rise of the internet has seen increased interest in disclosure on websites – although these do not always add significantly to the data disclosed in reports.

Conceptual clarification and theoretical discussion of CED have been accompanied by empirical studies that have sought to determine the extent of CED practice and identify patterns and trends within it. This descriptive work has increasingly been complemented by research that has sought to investigate the factors (e.g. company size, industry type or country) that are associated with variations in disclosure between companies. Such explanatory studies are useful for understanding cross-sectional variations, but they have less to contribute to an understanding of trends; studies that use panel data and hence incorporate a longitudinal element simply model trends by means of a dummy variable for each year (Kolk *et al.*, 2001; Brammer and Pavelin, 2008; Elmagrhi *et al.*, 2016; Ntim, 2016). A further limitation is that a focus upon explaining CED tends to displace, particularly within the constraints of a journal article, detail regarding the phenomenon of interest – the disclosure itself. Thus, while attempts to provide 'causal explanation' have their place, this paper takes a different approach, which we term 'analytical explanation', to explore the particular features of disclosure that underlie the overall figures that would be the dependent variable in a regression model.

Most empirical research has been carried out in developed countries, with relatively little attention paid to CED in developing countries (Gray and Kouhy, 1993; Bebbington *et al.*, 1994; Rikhardsson, 1996; Noci, 2000; O'Donovan, 2002; Campbell, 2003; Nyquist, 2003; Islam and Deegan, 2008). This has begun to change in recent years, but there are still comparatively few studies of CED in the Arab Middle East and North Africa (MENA) region (Amran and Haniffa, 2011; Eljayash *et al.*, 2012; Akrouf and Othman, 2013), even though this region is economically important and faces major environmental issues. The aim of this paper is to add significantly to that limited literature by means of a comprehensive, longitudinal descriptive analysis of corporate annual reports.

The overall MENA region classically consists of the area from Iran in south-west Asia to Morocco in north-west Africa and down to Sudan in Africa. With a rapidly growing population approaching 400 million people, it is an economically varied region comprising both resource-scarce countries, such as Morocco and Egypt, and those countries with oil-rich economies (e.g. Saudi Arabia, Qatar and Kuwait) (World Bank, 2015). Many companies operate within polluting sectors (e.g. energy or other industrial). Table 1 presents gross domestic product (GDP) and sector composition ratios for nine selected MENA countries provided by The World Fact Book (2015). These 'Arab' Muslim-majority countries share many cultural characteristics, in varying degrees (Hampden-Turner and Trompenaars, 2015; Hofstede *et al.*, 2015).

Saudi Arabia is the largest economy, where the industrial sector represents about 60% of total GDP. By contrast, the smallest economy is Jordan, where environmentally sensitive industries contribute just under 30% of GDP. Most of the selected countries [Saudi Arabia, United Arab Emirates (UAE), Egypt, Qatar and Oman] have more

Country	Agriculture ¹	Industrial ²	Services ³	Total GDP	World rank
Saudi Arabia	15 558	464 406	297 936	777 900	19
UAE	2 489	245 260	168 642	416 391	29
Egypt	41 595	110 826	132 479	284 900	41
Qatar	212	144 160	67 628	212 000	51
Kuwait	538	88 574	90 009	179 121	59
Morocco	15 764	28 037	68 799	112 600	63
Oman	1 047	44 458	35 035	80 540	67
Tunisia	4 273	14 245	30 602	49 120	88
Jordan	1 170	10 709	24 635	36 514	96

Table 1. The sampled MENA countries based on GDP sector composition (\$ millions)

¹Agriculture includes farming, fishing and forestry

²Industrial includes mining, manufacturing, energy production and construction

³Services covers government activities, communications, transportation, finance and all other private economic activities that do not produce material goods

Source: The World Fact Book (2015).

contribution to GDP from the industrial sector than from other sectors. Although the industry sectors' collective contribution to GDP is only 37.5% in the other four countries (Kuwait, Morocco, Tunisia and Jordan), it is still a significant contribution. It can be concluded that industries that are likely to be environmentally sensitive play a central role in MENA economies. Furthermore, the Arab MENA region tops the world for exposure to tiny air pollutants, with the UAE ranked as the most polluted country in the world when looking at the volume of small particulate matter in the air (World Bank, 2015).

The primary aim of this paper is to document levels, trends and patterns of CED within the Arab MENA region by means of a thorough descriptive analysis of a large dataset assembled for the purpose; a comprehensive disclosure checklist was developed to analyse 180 companies' annual reports across the nine countries over a period of 5 years. It thus responds to calls to investigate CED in developing countries generally (Momin, 2013; Fernandez-Feijoo *et al.*, 2014; Belal *et al.*, 2015; Belal and Owen, 2015) and, especially, for more in-depth research into CED practices among MENA firms (Kamla, 2007; Eljayash *et al.*, 2012; Akrouf and Othman, 2013), providing a platform for future researchers as well as insights that should be of interest to policy-makers in the region. A secondary aim, given the initial findings, is to explore what underlies the significant increase in CED over the period in question. The next section reviews the relevant literature.

Literature Review

Studies of CED in developed countries are comparatively numerous, with large companies in the United States, the UK, Australia and Germany identified as having relatively high levels of CED in their annual reports (Sinclair and Walton, 2003; Spence, 2009; Hassan and Ibrahim, 2012; Fifka, 2013; Iatridis, 2013). In contrast, although the amount of research on CED in developing countries has been growing, there is only one multi-country study of CED in the Arab MENA region recorded in Panel A of Table 2. Eljayash *et al.* (2012) sought to examine environmental disclosure in 10 Middle Eastern Arab oil-exporting countries. Their descriptive study found a generally low, but growing, level of CED compared to developed countries, together with some variations between countries. However, the research was limited to oil and gas companies and considered only 16 environmental disclosure items. The one single-country study of CED – shown in Panel B of Table 2 – also found a low but increasing level of disclosure, but it was similarly focused solely on the oil and gas sector (Al-Drugi and Abdo, 2012). Although the oil and gas sector is important in the region, it is by no means the only sphere of corporate economic activity that affects the environment. There is therefore a need for research that examines other sectors too. Moreover, even though it was focused on CED, the study by Al-Drugi

Country/country	Author(s)	No. of firms	Observations	Sector(s)	Study period	CED items	Content analysis method	Type of study
Panel A: multi-country CED studies								
APEC ¹	Eljayash <i>et al.</i> (2012)	58	174	Oil and gas	2008–2010	16	Iu	Desc
Panel B: single-country CED studies								
Libya	Al-Drugi and Abdo (2012)	43	344	Oil and gas	2002–2009	5	Wo	Expl
Panel C: multi-country CSD studies								
Middle East ²	Kamla (2007)	68	68	Multi-sectors	2000	23	Iw	Desc
Panel D: single-country CSD studies								
Jordan	Abu-Baker and Naser (2000)	143	286	Industry and Banking sectors	1996–1997	15	Iw	Desc
Jordan	Al-Khadash and Al-Yarmouk (2003)	46	138	Industry sector	1998–2000	4	Wo	Expl
Egypt	Hanafi (2006)	82	279	Multi-sectors	1998–2000	8	Iu	Expl
Qatar	Naser <i>et al.</i> (2006)	21	42	Industrial, service and financial sectors	1999–2000	15	Iu	Expl
Egypt	Rizk <i>et al.</i> (2008)	60	60	Industry sector	2002	4	Wo Se	Expl
Jordan	Ismail and Ibrahim (2008)	60	60	Manufacturing and Services	2006	4	Wo	Expl
Saudi Arabia	Al-Gamrh (2010)	93	93	Non-financial	2008	25	Iu	Expl
Egypt	Hussainey <i>et al.</i> (2011)	111	555	Listed firms	2005–2010	4	St.	Expl
Tunisia	Gana and Dakhlaoui (2011)	36	180	Financial and Non-financial sectors	2001–2005	11	Iw	Expl
Morocco	Amine <i>et al.</i> (2013) ³	8	41	Banking	2012	9	Wo Ph	Expl
UAE	Naser and Hassan (2013)	60	60	Non-financial sector	2011	26	Iu	Expl
Kuwait	Al-Ajmi <i>et al.</i> (2015)	82	82	Industry and Services	2012	15	Iu	Expl
Libya	Elmogla <i>et al.</i> (2015)	54	270	Public and private	2 001–2 005	7	Wo Se	Desc
Morocco	Khelif <i>et al.</i> (2015)	14	84	Non-financial	2004–2009	21	Iu	Expl
Saudi Arabia	Habbash (2016)	53	267	Non-financial	2007–2011	17	Iu	Expl

Table 2. Studies of CED in annual reports in the Arab MENA region

¹Arab Petroleum Exporting Countries (APEC): Saudi Arabia, Libya, Oman, Bahrain, Algeria, Tunisia, Egypt, UAE, Qatar and Kuwait

²Saudi Arabia, Kuwait, Qatar, Bahrain, Oman, UAE, Syria, Jordan and Egypt.

³Also examine standalone reports

Publications are presented from earliest to most recent in each panel.

Desc, descriptive study; Expl, explanatory study; CED, corporate environmental disclosure; CSD, corporate social disclosure; Iu, unweighted index; Iw, weighted index; Ph, number of phrases; Se, number of sentences; St, number of statements; Wo, number of words.

and Abdo (2012) also considered only a very limited range of disclosure items (just five) and, as it concentrates on explaining disclosure in terms of firm characteristics, the insight it provides into CED practices themselves is very limited.

Although only two previous studies focused exclusively on CED in the region have been discovered, research on CSD has been published which has included environmental disclosure items and so is of relevance to the current study. Panel C of Table 2 contains one multi-country study of CSD in the region (Kamla, 2007), while Panel D lists 15 other, single-country CSD studies.

In addition to noting a low but increasing level of CSD, Kamla's (2007) multi-country study found that only a small percentage of the sampled companies reported any environmental information in their annual reports, with environmental disclosure less than any of the other, social dimensions. Any differences between countries tended to reflect isolated differences between companies.

A similar picture emerges from the single-country disclosure studies shown in Panel D of Table 2: a low level of CSD and, where mentioned separately, a low level of CED too – with possible explanations for limited disclosure including the lack of a strong stock market and the insignificant influence or enthusiasm of professional accountancy bodies and accounting professionals (Abdelsalam and Weetman, 2007; Kamla, 2007; Al-Janadi *et al.*, 2012; Elmogla *et al.*, 2015).

However, in the case of multi-period studies or where an attempt has been made to compare with a previous study in the same country, there is further evidence of increasing disclosure, albeit still at a low level. Increases have been seen in Saudi Arabia (Habbash, 2016) and Tunisia (Gana and Dakhlaoui, 2011), for example. Various explanations have been proposed, including increased awareness of environmental responsibility among firms' decision-makers (Islam and Islam, 2011), collective stakeholder pressures (Gana and Dakhlaoui, 2011), enactment of new environmental responsibility legislation (Bayoud *et al.*, 2012) and a desire to attract foreign direct investment (Hossain and Hammami, 2009; Hussainey *et al.*, 2011; Ahmad, 2014), especially after the global financial crisis (Al-Janadi *et al.*, 2012).

There is also some evidence of differences across sectors in the region, with industrial firms reporting – but at a low level – more environmental information than firms operating in less environmentally sensitive sectors in both Egypt and Tunisia (Belhaj and Ayadi, 2011; Hussainey *et al.*, 2011); although contrary to this, such differences were not identified in relation to financial and non-financial companies in Qatar (Naser *et al.*, 2006).

Since there are many facets to the relationship between a firm and the natural environment, the overall level of CED can comprise many different elements. Differences can perhaps be discerned between different countries – although, as Table 2 shows, because most studies are of a single country and use only a limited and varying range of environmental disclosure items, such differences are to a large extent a matter of conjecture. However, there is some suggestion that, while Jordanian firms measure and report on environmental expenditure and pollution abatement (Al-Khadash and Al-Yarmouk, 2003; Ismail and Ibrahim, 2008), Egyptian firms disclose environmental policy and audit categories (Hanafi, 2006; Rizk *et al.*, 2008). Moreover, environmental pollution and environmental energy categories were the most disclosed items in firms' annual reports in the UAE (Jahamani, 2003). However, the ability to compare different countries meaningfully and convincingly is dependent upon a comprehensive and consistent checklist of disclosure items, which is a key feature of the current study.

In conclusion, there are signs of interest by researchers in CED in the Arab MENA region, but as yet the coverage is patchy. Most studies are focused on a single country, with the environmental disclosure items checked for often being relatively few in number and usually subsumed within a broader CSD study. The only multi-country study of CED (El-Jayash *et al.*, 2012) focused exclusively on the oil and gas sector and used just 16 environmental disclosure items. While some CSD studies examined more environmental disclosure items than this [e.g. Naser and Hassan (2013) used 25 in their study of the UAE], the overall average of the studies listed in Table 2 is just 12.7 items, suggesting that coverage of environmental issues has tended to be limited to date. It is also difficult to compare studies, since they were conducted at different times and, more significantly, used different methods to study CED – which they report relatively little about. The importance of environmental issues in the region and some signs of increasing environmental disclosure, albeit from a low base, reinforce the need for further research. The scope of the current study and the approach taken to the research are explained in the next section.

Research Method

The annual report remains the principal means of systematic accountability to all stakeholders or user groups and a key means of corporate communication. It is an institutionalized form of corporate disclosure prepared on a standard basis every year (Buhr, 1998) with a relatively high level of credibility and reliability (Deegan and Rankin, 1997), and it is freely published and less difficult to access than other kinds of report (Epstein and Freedman, 1994; Lober *et al.*, 1997). Often it will be accessible via a company's website, but in the Arab MENA region it is rare for the website (if there is one) to disclose additional information regarding the company's relationship with the environment. Likewise, standalone environmental reports are not common. For these reasons, the focus of the current study is upon annual reports, which is in line with much of the previous literature (Gray, 2006), especially within the Arab MENA region; Khasharmeh and Desoky (2013) and Akrouf and Othman (2013) examined websites, but the 18 studies cited in Table 2 all analysed annual reports, with only Amine *et al.* (2013) also looking at some standalone reports. Returning to the issue of definitions, no assumptions are made in the current paper about whether disclosure is voluntary or mandatory, nor about whom the information is aimed at or used by; the focus is simply to understand what is disclosed and hence available for users to access.

The Arab MENA countries selected for the study were Egypt, Jordan, Kuwait, Morocco, Oman, Qatar, Saudi Arabia, Tunisia and UAE, because they have the largest and most active stock exchanges in the region and sufficient data for the empirical analysis. Altogether, these nine countries represent over 85% of both Arab MENA GDP and stock exchange capitalization. The sample of countries thus covered all the individual countries mentioned in Panels B and D in Table 2 except for Libya, which has been suffering severe internal political disruption and unrest for several years.

The population of companies for the study comprised a total of 1195 firms officially listed on the main stock exchanges in the nine countries as at 12 February 2015. Financial firms were excluded, because this sector has largely indirect effects on the environment (Thompson and Cowton, 2004) and is subject to heavier and different regulation compared to other sectors (Guest, 2009). This exclusion is in line with much previous literature (e.g. Haniffa and Hudaib, 2006; Ntim, 2009), including many of the studies listed in Table 2. The remaining firms were classified into Industrial and Services groups, since the nature of the broad sector can have a significant influence on CED. So can firm size (e.g. Lang and Lundholm, 1993; Beattie *et al.*, 2004; Hassan and Marston, 2010; Ntim, 2016). Therefore, the five largest and the five smallest firms (based on the average of their Total Assets over a 5-year method) within each sector in each of the nine MENA countries were selected (see Panels B and C of Table 3). It was decided to examine 5 years of annual reports to discern any recent trends, in line with the lengthier multi-period studies in Table 2. Thus, our final sample consisted of 180 listed companies (20 per country, representing 20.5% of the overall population of non-financial companies) over a 5-year period. Nine hundred annual reports were analysed using a checklist consisting of 55 environmental items, which resulted in an overall total of 49 500 observations. This is considerably larger than any of the studies listed in Table 2. The composition of the final sample and its relationship to the overall population are shown in Table 3.

The annual reports for each company were obtained from the websites of the nine stock markets or from company websites, supplemented with the Perfect Information and Trade Mubasher databases. Content analysis (Krippendorff, 2004; Neuendorf, 2016), which is commonly used in such studies, was used to analyse CED in the 900 annual reports. Content analysis techniques provide a disciplined process for collecting data in an undistorted manner (Krippendorff, 2004; Sarantakos, 2005) and assist in longitudinal research by enabling the analysis of a comprehensive dataset (Milne and Adler, 1999).

There are various ways of applying content analysis in disclosure studies. As reflected in the final column of Table 2, there are two principal methods: first, the counting of words, sentences or similar units on a particular topic; and second, the creation of an index based more simply on whether a particular disclosure item is present or absent. Both have their merits, but the use of an index has become more common in CSD and CED studies over time (Campbell, 2004; Islam and Deegan, 2008), which is reflected in Table 2. This study uses the same approach. It can be particularly efficient and insightful when a large number of potential disclosure items is being considered.

A disclosure index can be either weighted or unweighted. An unweighted version reduces the subjectivity involved in assigning relative importance to individual items and the problem of different researchers weighting things differently (Ahmed and Courtis, 1999). It has become the norm in annual report studies (also evident in Table 2). In an unweighted disclosure index, an item will score one if it is present in the annual report and zero

Panel A: sector composition of listed firms in the nine Arab MENA countries	Number in each sector		% of population
Industrial sectors	386		32.3
Services sectors	492		41.2
Total sampled firms	878		73.5
Financial sectors (excluded)	317		26.5
Total population	1195		100
Panel B: the sample of firms at country level	Industry	Services	Total firms
Largest firms ¹	5	5	10
Smallest firms ¹	5	5	10
Total	10	10	20
Panel C: the sampled firms at MENA level	Industry	Services	Total firms
Larger firms	45	45	90
Smaller firms	45	45	90
Total	90	90	180

Table 3. The sample

¹Based on average of total assets over 5-year period

if it is not (Cooke, 1992; Depoers, 2000; Ntim, 2009, 2016). Consequently, the total environmental disclosure index (EDI) for a particular company is calculated as follows:

$$EDI = \frac{\sum_{i=1}^n di}{n}$$

where: EDI is the environmental disclosure index, di is the disclosure item and n is the number of disclosure items.

Since the aim of this study is to provide a comprehensive analysis of possible disclosure, considerably in excess of the studies listed in Table 2, reference was made to other CED studies, including those in the developed world. However, the appropriateness of Western CED techniques to assess CED within the different socio-cultural contexts of developing countries has been criticized (e.g. Gray and Kouhy, 1993; Bebbington *et al.*, 1994; Baydoun and Willett, 1995; Belal, 2001; O'Donovan, 2002). Therefore, although the content analysis instrument used by Wiseman (1982), Gray *et al.* (1995) and Hackston and Milne (1996) was used as a basis for this study, it was adapted and expanded to ensure its relevance to the sample companies in two ways. First, studies of CED in developing countries, including MENA countries, were examined to identify additional disclosure items (e.g. Hossain *et al.*, 2006; Islam and Deegan, 2010; Akrouf and Othman, 2013; Ullah *et al.*, 2014). Second, a pilot study of Saudi Arabian companies was conducted in 2014; this resulted in the inclusion of items, such as the influence of Islamic principles, within the disclosure index. This process resulted in a total of 55 environmental disclosure items in the checklist or research instrument, which is considerably more detailed and therefore more comprehensive than previous studies in the Arab MENA region (Table 2).

The individual environmental items were categorized into five groups, which provide the basis for separate sub-indices: environmental policy (five items), pollution by product and/or process (22), energy (10), financial (seven) and other environmental items (11). The findings from the application of the research instrument to the 900 annual reports in the sample and from the calculation of the associated disclosure indices are presented in the next section.

Findings and Initial Commentary

The purpose of this section is to present the key results of the analysis of CED by companies in the Arab MENA region. The presentation proceeds as follows. First, an overview of the EDI scores for the region and by country over the 5-year period is presented in Table 4. Patterns and trends are examined. Then, having discovered that overall CED increased by almost 45% over the period in question, a more detailed analysis is presented to discover what might be driving that growth. First, the increases displayed by individual countries are discussed. Second, we examine the scores for the five sub-indices that reflect the categories into which the 55 disclosure items that comprise the EDI were grouped. Finally, EDI scores are compared after classifying the companies according to size and sector. After each element of the findings has been presented, the key points are highlighted and briefly discussed in relation to the relevant literature.

Table 4 presents the percentage of the 55 environmental disclosure items disclosed by the 20 sampled companies in each country in each year. Cronbach's α is 0.79, which indicates an adequate level of reliability (Bland and Altman, 1997). As expected, but not previously confirmed on a systematic basis, Table 4 does not indicate a high level of disclosure in the region. Even in 2014, which not only is the most recent year surveyed but also yields the highest overall score for each of the nine countries, the mean for the region was only 15.7%; in other words, fewer than one in six of the potential items was disclosed on average. Moreover, in no year does any individual country show an EDI >20%. This appears to resonate with comments in the previous literature on CED and CSD in the Arab MENA region to the effect that social and environmental disclosure levels are low (Imam, 2000; Rizk *et al.*, 2008; Elmogla *et al.*, 2015), as in much of the developing world (Andrew *et al.*, 1989; Belal *et al.*, 2010; Belal and Cooper, 2011).

However, it should be noted that the more comprehensive the disclosure index, comprising a greater number of items, and the more precise the individual items included in it (the two tend to be related), the more likely it is that there will be items about which little or no disclosure is made, not least because some companies will not possess the relevant characteristic for such disclosure to be possible. In other words, some items might not be relevant to some companies, although it is not always easy to identify where this is the case. This is presumably one reason why industrial companies are typically shown to disclose more than service companies – although there are external influences, such as visibility, involved too (Lang and Lundholm, 1993; Verrecchia, 2001).

Nevertheless, when the figures in Table 4 are compared with studies in the developed world, the relatively low incidence of CED in the Arab MENA region appears to be confirmed. In the United States, for instance, environmental-related corporate disclosures, in a multi-sector study, scored 81.8% of the items in a 2009 study

	CED among the sampled firms (%)						Mean	Change, 2010–2014
	2010	2011	2012	2013	2014	2014 rank		
Egypt	14.82	16.27	17.18	18.55	19.64	2	17.29	4.82
Jordan	10.27	10.55	11.09	13.45	15.55	6	12.18	5.28
Kuwait	11.27	12.27	12.82	14.73	16.55	3	13.53	5.28
Morocco	10.89	11.66	12.49	14.32	15.73	5	13.02	4.84
Oman	10.82	11.64	12.91	14.36	14.82	8	12.91	4.00
Qatar	11.82	12.54	13.36	15.18	16.36	4	13.85	4.54
Saudi Arabia	11.09	13.09	14.91	16.82	19.82	1	15.15	8.73
Tunisia	5.64	4.91	5.55	7.27	7.55	9	6.18	1.91
UAE	11.36	12.00	12.09	14.18	15.55	6	13.04	4.19
Regional mean	10.86	11.64	12.46	14.23	15.70		13.00	4.84
Change for year	—	+0.78	+0.82	+1.77	+1.47			

Table 4. CED of all firm years based on countries

Note: two-tailed *t*-test conducted on country mean for the year versus mean of all the other countries (together) for that year. Bold figures indicate disclosure for that year that is statistically greater or less than the regional mean at a 5% level of significance.

(Matisoff *et al.*, 2013). Similarly, environmental reporting in France, Germany and the UK recorded 27, 43 and 64% of the adopted items, respectively, in a study by Barbu *et al.* (2014).

Within the region, most of the countries are somewhat similar in their average disclosure scores. The countries not highlighted at all in Table 4 are generally bunched around the mean and, although there are some changes in the annual rankings, the cross-sectional differences in scores are small in any given year. The bold figures in Table 4, however, indicate countries that are significantly different from the other countries. Three countries are highlighted. First, Tunisian companies are seen to disclose significantly less, on average, than companies in the other countries. Indeed, in every year the Tunisian EDI score is about half the regional mean. Second, in most years, Egyptian companies disclosed significantly more than companies in other countries. Egypt is not a resource-based economy, but it is regarded as a leading country in the region; and its stock exchange, established in 1883, is the oldest in the MENA region, reflecting a longer history of experience and commitment to securities market regulation and requirements (Abdelsalam and Weetman, 2007). British rule, which lasted nearly 70 years from 1882, influenced the accounting profession in Egypt and, in particular, helped to institutionalize disclosure practices initially followed in the UK (Eltkhtash, 2013). The third country, highlighted just once in Table 4, is Saudi Arabia. Like Egypt, Saudi Arabia is regarded as a leading country in the region. It has some very large companies and is highly dependent on the oil and gas sector, which has been the focus of some previous studies in the region (Al-Drugi and Abdo, 2012; Eljayash *et al.*, 2012). What is particularly notable about Saudi Arabia in Table 4 is that it began the period as the fifth ranked of all the countries and thus in the bottom half of the sample, but by 2014 its companies disclosed the most, overtaking Egypt. During the period under study, it began implementing comprehensive national environmental standards, such as the General Environmental Standard for Noise and Ambient Air Standard, which – although not focused on disclosure itself – have potentially affected firms' environmental attention and performance and then their environmental reporting (Chakibi, 2013).

Indeed, it is the trends shown in Table 4 that are highly revealing and probably of greater significance for sustainable development in the region than the patterns identified so far. Table 4 shows that the regional mean increased each year for the period under study, and the figure for 2014 was almost 45% higher than that for 2010 – a striking change. Moreover, it is indicative of the extent of the growth in CED in the region over the 5 years that the eighth ranked of the nine countries in 2014, Morocco, would have been the highest ranked in 2010 with its 2014 EDI score.

The question then arises: what might account for this change? As mentioned earlier, a typical causal explanation, relying upon regression analysis, would be unlikely to offer much insight into longitudinal change; it would be better at explaining differences between companies. Instead we embark on what might be termed an 'analytical explanation', which focuses on various aspects of the data underlying the overall EDI scores. In particular, we examine the data to check whether a particular feature is responsible for the overall trend to an unusual extent. Thus, we examine the following to see whether they are associated with the increase in disclosure to significantly different degrees: individual countries; categories of environmental disclosure; company sectors; and company size. This provides a fuller understanding and better basis for discussing what might have been going on.

Re-examining the trends in Table 4, it is notable that the regional increase appears to have been a cross-country phenomenon. Most countries show broadly similar increases – except, arguably, Saudi Arabia which, as noted earlier, overtook Egypt to be the highest ranked country in 2014. Even for Tunisia, where the small absolute annual increases confirmed its bottom-ranked position, there was a reasonably substantial percentage increase (33.9%) between 2010 and 2014. Overall, the increase in disclosure across the countries is of a similar order of magnitude over the 5 years. Thus, it can be concluded that, while there are some significant differences in the disclosure levels between the highest and lowest countries in any particular year, no individual country or group of countries is particularly responsible for the significant growth that has occurred, and hence the conclusion that the increase is a region-wide phenomenon.

Further tables present more detailed analysis of the CED figures, thus providing other opportunities to explore whether particular sub-trends can account for the increase in overall disclosure. One avenue for analysis is the different elements of CED. As explained earlier, the 55 disclosure items were put into five categories, permitting the calculation of five sub-indices of the EDI. Table 5 shows the results.

In terms of patterns, Table 5 shows that the strongest category for disclosure was environmental 'policy'. Examination of the detailed data shows that nearly all companies (97.8%) made general statements of 'the firm will or the firm does' nature, and the vast majority (83.3%) provided an actual statement of policy in 2014. Both items showed

Sub-index of EDI	(%)					Change, 2010–2014	Contribution to total change
	2010	2011	2012	2013	2014	Amount (%)	%
i. Policy (5) ¹	41.00	42.56	44.67	45.67	46.89	5.89 (14.4)	11.1
ii. Pollution (product-process) (22)	6.59	7.95	8.66	10.03	11.34	4.75 (72.1)	39.0
iii. Energy (10)	5.78	5.83	6.06	7.33	8.28	2.50 (43.3)	9.4
iv. Financial (7)	16.03	15.95	17.62	21.9	23.89	7.86 (49.0)	21.0
v. Other (11)	7.02	7.52	7.98	9.75	11.72	4.70 (67.0)	19.5

Table 5. Environmental disclosure by sub-index

¹Number of items in sub-index shown in parentheses

some increase over the period of study, but from an already high base.¹ Other items within this category and the other four categories all showed much lower scores. However, within the ‘financial’ category, which was the second-ranked, there were some notable scores: provisions or contingencies (70.6% in 2014); allocation record of the specific fund to protect the environment (37.2%); and discussion of economic/financial impacts (25.6%). As might be expected from the overall scores, the other three categories contained relatively few items that were disclosed widely. Exceptions included: in the ‘energy’ category, the conservation and saving of energy (43.3%); and in the ‘other’ category, training relating to environmental management (27.2%) and partnerships with environmental research institutions (22.2%). Within the pollution category, which contained 22 items, just three items scored more than 20% in 2014 – the control and treatment of emissions, etc. (56.7%), the management of waste (43.9%) and water discharge (23.3%).

Adams and Harte (1998) comment that what companies do not report can be of interest, not just what they do disclose. However, given the findings that have been presented so far, it is no surprise that most of the component items comprising the EDI are not disclosed by the vast majority of the companies; even in 2014, the most active year for disclosure, 32 out of the 55 items (58.2%) were disclosed by <10% of companies.

Nevertheless, returning to the issue of explaining the trend in EDI, even many of the items disclosed by only a small minority of companies have been disclosed to an increasing extent over the period of the study. Of the 55 items in the EDI, only eight did not show growth between 2010 and 2014, and none declined. Thus, 47 (85.4%) of the disclosure items were disclosed more at the end of the study than 5 years earlier. This might reinforce the impression of the trend being a general one rather than driven by specific factors. However, there are some more disparate sub-trends.

As shown in Table 5, all the sub-indices for the particular categories of disclosure grew, but to varying degrees – by between 2.50 and 7.86 percentage points, or between 14.7 and 72.1% of their 2010 figure. As part of the analytical explanation of the overall trend in EDI, the final column of Table 5 reports a novel calculation, namely the proportion of the total increase in disclosure accounted for by each category or sub-index. It is interesting to note that the ‘pollution’ category accounts for more than one-third of the disclosure growth. This is, in part, a reflection of the relatively large number of items in the category (22), but in the context of the environmental challenges facing the MENA region, it is nonetheless significant. Nevertheless, the finding that the ‘financial’ category accounts for more than one-quarter of the total disclosure growth with only seven items might be more significant. It seems to suggest that a change might be occurring, as Eljayash *et al.* (2012) reported a lack of information regarding environmental spending and costs by oil firms in the Middle East – although information on actual and planned expenditure on pollution control (represented by two of the items) is still found to be very limited in the current study.

Finally, we examine whether there are differences in trend related to type of company, in terms of industry and size – two common variables in causal explanations. Table 6 presents the basic data and shows the two effects expected from previous literature in both developing and developed countries, namely that large companies disclose more information and that industrial companies disclose more than service companies. Indeed, in the current study, the largest industrial companies disclose, on average, about four times as much as the smallest service companies. Possible explanations for these effects include higher visibility and greater environmental sensitivity (Peck and Sinding, 2003; Delmas and Blass, 2010), although it should also be borne in mind – as explained earlier – that such companies might have greater potential for disclosure to begin with. As the largest and smallest companies are

¹Full details of the findings for the 55 items between 2010 and 2014 are available from the authors.

Company size	Industry sector		
	Industry	Services	All
Largest	29.33 (20.93)	15.96 (11.23)	22.65 (16.08)
Smallest	10.02 (6.67)	7.47 (4.61)	8.75 (5.64)
All	19.68 (13.80)	11.72 (7.92)	15.70 (10.86)

Table 6. EDI 2014 (and 2010) by company type
EDI for 2010 in parentheses. All figures are percentages.

defined with respect to their peers in a particular country's stock market, the effect of size in terms of total assets is not directly observable from Table 6. Nevertheless, it is highly suggestive: the largest service companies disclose more than the smallest listed industrial companies, suggesting that the size effect dominates the industry effect.

However, notwithstanding the differences between categories in a given year, in terms of change over time, the figures in Table 6 suggest that the overall growth is – again – not being driven by a particular category of company. Indeed, while the percentage increases displayed by the four categories are inversely related to the rank of total disclosure, the differences in growth are not great; and the absolute changes follow the rank order. In other words, for example, the largest industrial companies have increased their total disclosure by the smallest proportion between 2010 and 2014, but they have actually added the greatest amount of disclosure according to the EDI. This reinforces the impression that the significant growth in CED that has been identified is a widespread, general trend.

Further Discussion

The detailed analysis of 900 annual reports provides a benchmark for future studies, whether of individual countries or of the Arab MENA region as a whole. It has generated several insights into CED across the region, yet the large amount of data presents further opportunities for analysis. For example, going beyond the analysis by industry sector and relative size presented in Table 6, a more sophisticated statistical analysis of the factors associated with differences between companies could be undertaken, akin to many previous studies that have sought, with varying measures of success² to explain patterns in disclosure. However, as a multi-country study that covers nine countries, and given the findings that have emerged about change over the period under study, it seems appropriate to focus the remainder of this paper on the international patterns and trends that have been discovered. Indeed, much of the more detailed analysis in the previous section was oriented towards understanding what might, or might not, be underlying the region-wide increase that was identified.

A striking aspect of the findings presented is that most of the countries are quite similar in terms of their CED, even as the level of disclosure has increased. However, it is notable that most countries lag behind Egypt and, more recently, Saudi Arabia, both of which would be regarded as 'leading' countries in the region. As explained earlier, Egypt has the longest-established stock exchange in the MENA region and a relatively well-developed regulatory environment (Abdelsalam and Weetman, 2007). Although it is not resource-rich, it is a major economy (Table 1), and a major centre of population and culture in the region. As the region's largest economy (Table 1), not to mention being home to two of the holiest sites in Islam (Mecca and Medina), Saudi Arabia also has considerable influence. During the period under study, it has increased its environmental regulation, which is a possible explanation for the increased disclosure that has been witnessed. Given the standing and influence of Egypt and Saudi Arabia within the Arab MENA region, it is not surprising if their corporate and other practices tend to spread to the other countries. Indeed, various emerging countries are following Saudi Arabia's environmental regulatory procedures (Khurshid *et al.*, 2014).

At the other end of the ranking apparent in Table 4, Tunisia disclosed significantly less than the other eight countries. A country's business culture can have a significant influence upon firms' CED in the MENA region (Othman

²The R^2 of the multiple regressions contained in the explanatory studies listed in Table 2, for example, range from 1.9 to 77%, with most lying in the range 20–40% [e.g. 20% in Ismail and Ibrahim (2008), 29% in Al-Ajmi *et al.* (2015), 37% in Habbash (2016), and 38% in Naser and Hassan (2013)].

and Zeghal, 2010), and one possible reason for relatively low disclosure by Tunisian companies could be the presence of a French business and accounting culture, in which there is less influence by the accounting profession – in contrast to the case of Egypt, for example. However, note that the Tunisian firms in the sample are smaller than the equivalent companies in other countries. Moreover, it should be acknowledged that, while Morocco's business culture has a similar French heritage, its level of CED is in line with most of the other countries. If a different business culture does have an influence, then, it must presumably have been overcome by some other factor(s). One possibility in the case of Morocco is its strong economic ties with GCC (Cooperation Council for the Arab States of the Gulf, usually abbreviated to Gulf Cooperation Council) countries, with GCC investments increasingly being made in Morocco (Hussein, 2012). Morocco has also introduced legislation, such as that adopted in 2011, to give impetus to environmental and sustainable development (United Nations, 2012).

It should be noted, however, that even Tunisia has witnessed, along with the other countries, increasing CED over the period 2010–2014. The cultural similarities and economic connections across the region mean that innovations are likely to spread in a relatively quick and consistent manner, particularly if they take place in 'leading' countries such as Egypt and Saudi Arabia. Moreover, there may be region-wide trends at work. One could be the desire for foreign direct investment (Hussainey *et al.*, 2011), which tends to encourage convergence of accounting practices with the source countries (Nobes and Parker, 2016). Another might be changing attitudes, with a growing awareness of climate change and regional environmental challenges, not only among politicians and the public, but also on the part of firms' decision-makers (Islam and Islam, 2011), perhaps because of collective stakeholder pressures (Gana and Dakhlaoui, 2011). Recent legislation, such as that mentioned above, might be both reflective and encouraging of this. Finally, the so-called Arab Spring might be associated with a general shift in approaches to accountability and disclosure (Masetti *et al.*, 2013), as firms have been subject to greater pressure to legitimize their activities in a given community (Avina, 2013). However, it should be acknowledged that, although the increase in CED identified across the region is significant, it cannot be considered revolutionary and disclosure levels still lag behind those in developed countries. Nevertheless, it will be interesting to monitor future developments, especially if more widespread concern about environmental sustainability takes root in the years to come.

Conclusions

In this paper, an effort has been made to provide by a considerable margin the most thorough coverage of CED in the annual reports of listed companies in the Arab MENA region. The study investigated a wide range of countries (nine), a good sample of companies (180), a substantial period of time (5 years), and a large number of environmental disclosure items (55) contained in a research instrument designed for content analysis – resulting in a total of 445 500 data points to feed into the calculation of the overall EDI as well as five sub-indices. Because a relatively comprehensive disclosure index was used, it is unlikely that the study was biased against any particular country or type of company and so it provides a sound basis for comparison across the Arab MENA region. As highlighted by Table 2, the study also adds considerably to coverage of individual countries – not just Oman, which is analysed for the first time, but also several other countries, which either have not been investigated recently (Qatar, Tunisia) or have only been subject to one single-year study (Kuwait, UAE). Moreover, and most importantly, most of the previous studies did not specifically analyse CED but CSD and so examined only a small number of environmental items; and where they did focus on CED, the number of items was still much smaller than in the current study.

The findings suggest a relatively low level of CED in the Arab MENA region, particularly in Tunisia. The other countries have rather similar levels of disclosure to each other, although there is evidence of higher disclosure in the 'leading' countries, Egypt and Saudi Arabia – in the latter case because of a faster-than-average rate of growth in disclosure over the period studied. There are also differences between companies, which have not been examined in depth in this paper, although size and sector were checked to see whether any one category of company was driving the increase in disclosure; they were not. More sophisticated statistical analysis of the data should be capable of shedding further light on company differences. However, such analysis will not explain the trend in disclosure, some possible factors relating to which were discussed in the paper (e.g. environmental legislation, foreign direct investment and changing attitudes). In addition to the benchmarking contribution made by the analysis, the identification of

significant growth in disclosure across the region is probably the key finding of the study, one that seems to apply whatever country, disclosure category (but with some variation) or type of company is considered. This would seem to be of some encouragement in terms of environmental challenges and sustainable development in the region.

Further work could investigate the remaining countries in the MENA region, together with unlisted companies and other organizations. Moreover, updating of the present study will be needed to determine whether there have been any significant changes in the overall levels and patterns of disclosure in the future and whether the trends identified here have continued. In presenting the first systematic, detailed analysis of CED in the Arab MENA region, the current study not only contributes an insightful picture of current practice and recent trends, but also lays a solid foundation for future researchers interested in the topic.

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