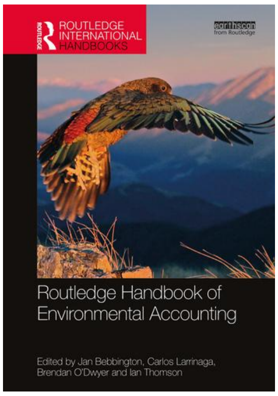

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ENVIRONMENTAL ACCOUNTING AND REPORTING

Evidence from the MENA region

Radhi Al-Hamadeen

Introduction and overview of the region

This chapter focuses on environmental accounting and reporting (EAR) in the Middle East and North Africa (MENA) region. Like other countries of the world, the Sustainable Development Goals (SDGs) form the backdrop of regional developmental priorities and these goals resonate with business in the region. Likewise, environmental reporting is undertaken by large companies in the region. For example, KPMG (2017) noted that reporting in the MENA region sits at 52% of large companies (for comparison, other regions have a higher incidence: Americas, 83%; Asia Pacific, 78%; and Europe, 77%). Of concern in this context is an apparent decline in reporting in the region, from 61% in 2011 to 54% and 53% in 2013 and 2015, respectively).[1] This sits in contrast to the challenges that face the region and the widespread belief that "environmental and social issues such as climate change, water scarcity and human rights will increasingly be seen as financial rather than non-financial issues" (KPMG 2017, p. 7). These issues, and others, are central to the region.

The MENA region (which also corresponds to the Greater Middle East – see World Bank 2014) covers a surface of over 15 million square kilometres and contains some 6% of the world's population of which half live in cities (IMF 2020). The region contains abundant human and natural resources and accounts for a large share of the world's petroleum production and exports (IMF 2020). In addition, the region has, on average, a reasonable standard of living in international terms, with countries in the region varying substantially in terms of resources, economic and geographical size, population and standards of living (IMF 2020). In terms of economic ties and intra-regional relations, the region suffers from weak intra-regional interaction, limited trade of goods and services, and lack of integration of capital markets, which have been all negatively impacted by the geo-political conflicts in some parts of the MENA region (IMF 2020). At the same time, it could be argued that the MENA region shares many common developmental challenges, has similar demographics, environmental similarities and some points of shared culture (Word Bank 2020a; UNICEF 2019).

O'Sullivan et al. (2012) emphasised that the Arab Spring (specifically after 2010) brought to light key challenges in the MENA region that already existed. These multi-level challenges (economic, social, and political) have significantly impacted the region and the people's quality of life. These challenges include, for example (O'Sullivan et al. 2012, p. 2):

- High levels of unemployment (in particular among youth generation)
- Pervasive corruption and lack of accountability and transparency
- Large public sectors with state-owned enterprises that "crowd out" the development of private sector and investment, which in turn decreases enterprise creation
- High dependence, for some countries in the region, on fuel and food imports, hence generating extensive exposure to commodity price volatility
- Additionally, the region faces serious environmental challenges such as water scarcity, loss of biodiversity, air pollution, inadequate waste management, declining marine resources and degradation of coastal ecosystems (Abumoghli and Goncalves, 2020).

According to O'Sullivan et al. (2012), these challenges, which are both "structural and interconnected", can be faced and addressed only through precise coordinated and comprehensive strategy that would involve all of the governments, civil society, the private sector, and the international community.

The OECD (2018) emphasises that almost two-thirds of MENA nations are dependent on natural resources; economic diversification (production, export and government revenue) is thus a major developmental challenge. Although MENA's exports and imports of goods account only for 4% of the world trade and 15% of trade of developing countries (IMF 2020), the current estimates indicate that 79.4% of the world's proven oil reserves are located in Organization of the Petroleum Exporting Countries (OPEC) member countries, with the bulk of OPEC oil reserves being in the Middle East (64.5% of the OPEC total and 51.2% of the world's oil reserves – see OPEC 2020). In this context, it can be said that the oil-industry-related activities (including exploration, development, and exportation) create particular environmental challenges. This is also evident in the CO_2 emissions ratio (metric tons per capita) for the MENA region (see Table 22.1).

The Work Bank (2007) classifies countries in the region by reference to the availability of oil resources and population size with three country types emerging:

- **Group I: Resource-rich, labour-abundant** countries. This group represents producers and exporters of oil and gas and have large home country populations, which

Table 22.1 Key demographical, economic, and environmental characteristics of MENA region

Aspect | Indicator	*MENA*		*The World*	
	2015	*2020*	*2015*	*2020*
Population growth rate (%)	1.88	1.73	1.17	1.08
Real GDP growth (%)	1.90	−4.00	3.50	−3.00
Inflation (average consumer prices) (%)	4.20	7.60	2.80	3.00
CO_2 emissions (metric tons per capita) *	6.22	–	4.98	–

Source: Adapted from International Monetary Fund (IMF 2020). *Adapted from World Bank (2020b).

represent almost the totality of their residents. This group includes Algeria, Iraq, Syria, and Yemen.

- **Group II: Resource-rich, labour-importing** countries. This group represents producers and exporters of oil and gas and have large number of foreign or expatriate residents, who represent a significant percentage of the total population of some countries (or even the majority in some cases). This group comprises Libya and the Gulf Cooperation Council (GCC) countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates [UAE]).
- **Group III: Resource-poor** countries. This group represents small producers or importers of oil and gas. These countries include Djibouti, Egypt, Jordan, Lebanon, Mauritania, Morocco, Tunisia, and Palestine.

For the purpose of this chapter, and based on World Bank (2007) classification (indicated above), the MENA region is divided into three categories as follows:

- Levant countries: Jordan, Lebanon, Syria, and Palestine
- GCC countries and Iraq: Bahrain, Iraq, Kuwait, Qatar, Saudi Arabia, UAE, and Oman
- North Africa (Arab countries): Algeria, Egypt, Libya, Morocco, and Tunisia.

This chapter now moves to provide an overview of the recent development of EAR practices among different countries in the MENA region, that is, Levant countries, GCC (plus Iraq) and North Africa. Finally, the chapter concludes with a discussion and conclusion.

Environmental accounting and reporting practices in the MENA region

Environmental challenges in the MENA region

Abumoghli and Goncalves (2020) emphasised that the MENA countries share common environmental challenges and "trans-boundary conflicts" that threaten the long-term stability of the region. In a report issued by the United Nations Environmental Program (UNEP), Abumoghli and Goncalves (2020) identified the crucial environmental challenges of water scarcity, loss of biodiversity, arable land depletion, air pollution, inadequate waste management, declining marine resources, and degradation of coastal ecosystems. In this regard, it has been argued that the "future development scenarios are expected to exacerbate these challenges, especially given that MENA is one of the regions that is most vulnerable to the impacts of climate change" (IPCC 2013 in Abumoghli and Goncalves 2020, p. 2). Sakmar et al. (2011) emphasised that while many of the MENA region's economic challenges have been widely explored and analysed, the environmental challenges, in particular, are rarely taken into consideration in the process of formulating economic policies in the region. In addition, and according to Carbon Dioxide Information Analysis Center (CDIAC 2016 in the World Bank 2020b), oil and gas producing countries generate the most environmental pollution in the region (specifically Algeria, Kuwait, and Saudi Arabia). Analysis now turns to how EAR has developed in this region.

Trends of environmental accounting and reporting research in the MENA region

Choi and Meek (2014) stated that, in general, corporate disclosures in developing countries are less extensive and less credible than disclosures from developed countries. One of the key reasons for this is the absence of monitoring techniques and enforcement of disclosure requirements. In the same context, accounting literature suggests that in comparison with the developed countries, less attention has been given to investigating EAR practices in the developing countries (Suwaidan et al. 2004; Ismail and Ibrahim 2009; Luo et al. 2013; Al-Hamadeen and Badran 2014).

Research on EAR in the MENA region can be classified according to the geographical scope (national and regional) and thematic interest of the research. The national studies focus on a specific country (see, e.g., Suwaidan et al. 2004; Aladwan 2018; Gerged et al. 2018; Abdull Razak et al. 2019; Rabi 2019), whereas the regional ones give focus to a group of countries within the region, for example, GCC, MENA, and North Africa (see, e.g., Sakmar et al. 2011; Eljayash et al. 2012; Eljayash 2015; Hawkamah 2014; Khalifa and Hammad 2014; Akrout and Ben Othman 2016; Gerged et al. 2018; Kilincarslan et al. 2020).

According to thematic interest of the research, literature on EAR in the MENA region can be classified into four thematic clusters that influence the EAR practice. These include investigating the ownership structure (Habbash 2015; Akrout and Ben Othman 2016; Al Amosh and Mansor 2020); examining the reporting companies' characteristics (Ismail and Ibrahim 2009, Eljayash et al. 2012; Al-Hamadeen and Badran 2014; Elshabasy 2018; Gerged et al. 2020); investigating the national contextual determinants (Ahmad and Gao 2005; Al-Ajmi et al. 2015; Al-Nimer 2015; Bani-Khalid and Kouhy 2017; Aladwan 2018); and governance attributes and board of directors' characteristics (Aboud and Diab 2018; Rabi 2019; Arayssi et al. 2020; Kilincarslan et al. 2020). Table 22.2 illustrates the key and sub-thematic research ideas on EAR in the MENA region.

Table 22.2 shows the factors that each of the thematic aspects encompasses. The reader is referred to the above-mentioned studies to see how each of these sub-factors affects EAR practices.

Practices of environmental accounting and reporting in Levant countries

Jordan

In recent years, considerable effort has been made by public and private parties in addressing environmental issues with three developments emerging. These include (1) the establishment

Table 22.2 Key and sub-thematic research ideas on EAR in the MENA region

Thematic research aspect	*Sub-themes covered*
Ownership structure	State ownership; Institutional ownership; Foreign ownership; Managerial ownership; Family ownership
Characteristics of the reporting companies	Business sector; Firm size, Profitability; Firm leverage; Firm value, Firm age, Audit firm size; Business culture
National contextual determinants	Regulatory reform; Political conditions, Legal system, Cultural values; Economic development; Country's Internet penetration, Stock market liquidity
Governance attributes and board of directors' characteristics	CG codes; Role duality; Board independence; Board ownership; Board size; Audit committee effectiveness; ESG index; BOD structure; Female board participation

of the Ministry of Environment in 2006 (under the provisional Environmental Protection Law No. [1] of 2003), (2) using the permanent *Environment Protection Law* (№. 52 of 2006), and (3) the establishment of the Royal Administration for Environmental Protection (Environment Police/Rangers) in 2006. Additionally, on the unofficial level, many civil associations and non-governmental organisations have been established, such as Jordan Environment Society in 1988; Association for Energy, Water & Environment in 2009; and the Jordanian Climate Change & Environmental Protection Society in 2015. These organisations play an important role in raising public awareness and community involvement on the environmental related issues.

In Jordan, there is no generally accepted framework for accounting and disclosing environmental information. However, national legislation emphasises the necessity of protecting the environment especially in areas governed by the *Environment Protection Act* (2006).[2] Nevertheless, the Act did not require business entities to disclose information about their commitment to environmental protection (e.g. the environmental protection-related expenditures). Furthermore, the Jordanian business-related regulations (i.e. Companies Law, Securities Law, and Commercial Law) do not oblige companies to issue periodic reports on their environmental performance. However, the Jordanian Securities Law No. 23 of 1997 requires the publicly listed companies to disclose their contributions to serving the environment and the local community.

Within the Jordanian business environment, limited studies have been conducted in the area of EAR. The earlier wave of research was conducted during the years 1990–2010 (see, e.g., Sha'shaa 1991; Al-Hamadeen 2002; Suwaidan et al. 2004; Ismail and Ibrahim 2009). Although research in this area is still not well established, there is a noticeable increase of research from 2010 onwards that addresses this issue (see, e.g., Al-Hamadeen and Badran 2014; Al-Nimer 2015; Bani-Khalid and Kouhy 2017; Aladwan 2018; Joudeh et al. 2018; Rabi 2019; Al-Amosh and Mansor 2020).

When it comes to business sectors, attention was given in the majority of these studies to investigate practices of the publicly listed "industrial" companies with a special focus on environment-sensitive industries: namely, mining and extraction, chemicals, and pharmaceuticals (see, e.g., Sha'shaa 1991; Suwaidan et al. 2004; Al-Nimer 2015; Aladwan 2018; Joudeh et al. 2018; Rabi 2019). Other studies have investigated EAR practices implemented by the largest Jordanian businesses in three different sectors (i.e. industrial, financial, and services – see, e.g., Ismail and Ibrahim 2009; Barakat et al. 2011; and Al-Hamadeen and Badran 2014).

When it comes to improvements in the Jordanian companies' practice of EAR, previous studies indicate that although there was an increase in the companies' disclosures, more information about their non-financial performance over the years is still needed (Barakat et al. 2011; Aladwan 2018). Moreover, these studies show that environment is still the weakest among all other sustainability-related disclosed issues (Ismail and Ibrahim 2009; Barakat et al. 2011; Al-Hamadeen and Badran 2014). Among all investigated factors, ownership structure, governance, size, and sector (predominantly industrial) are associated with disclosing more environmental related information (Ismail and Ibrahim 2009; Rabi 2019). Nevertheless, it has been suggested that the Jordanian companies are committed to EAR practices as part of sustainable development (Aladwan 2018). Notably, these companies also consider the cultural values, economic development, political conditions, and legal system as significant factors for explaining the level of "corporate environmental reporting" (Bani-Khalid and Kouhy 2017).

Lebanon and Syria

In Lebanon and Syria, the political scene conditions all other aspects. Lebanon suffered heavily from the civil war in the 1970s and 1980s, and it still suffering from the consequences of that conflict. At the same time, Lebanon faces a number of environmental threats, including solid waste management, air and water pollution, risks associated with climate change, and shortage of water supply. Jadam (2010) stated that increased population, public awareness and lifestyle, political indecision, and inadequate legislation are the most important reasons for increasing environmental challenges in Lebanon. According to a study conducted by the World Bank in 2004 on the state of environmental degradation in Lebanon, the cost of degradation caused by pollution from illegal dumping and waste burning was estimated at $10 million per year, and was still rising (Jadam 2010).

In Syria, and since the outbreak of the Arab Spring in 2011 which, in turn, has been transformed into a civil war, the environmental challenges have increased dramatically. According to Zwijnenburg and Te Pas (2015), Syria has major environmental issues, such as desertification, deforestation, soil erosion, coastal pollution, water pollution from the dumping of raw sewage and wastes from petroleum refining, and inadequate supplies of potable water.

To the best of the author's knowledge, and based on the publicly available literature, no evidence has been provided within the accounting, finance, and business disciplines to describe, examine, or critique business practices in the area of EAR in Lebanon and Syria. Therefore, it is exceptionally difficult to infer or judge the corporate practices around EAR in this part of the MENA region.

Palestine

Since 1948, Palestine has faced two challenges: the Israeli occupation and internal division that in turn have further weakened the state and its legal system (Barakat et al. 2011). Economic stability, investments flows, business environment, and legislation of business practices have all been negatively impacted by these challenges.

Within the Palestinian context, a very limited attention has been given to explore EAR practices (see, Barakat et al. 2011; Alkababji 2014; Ahmed 2019) and it is difficult to build a clear image about EAR practices. In general, it is believed that information disclosed about environmental practices is minimal due to weaknesses in reporting and accounting practices of Palestinian companies. Alkababji (2014) who examined 48 corporate annual reports that were listed on the Palestine Exchange (PEX) in 2012 asserted that the disclosed environmental performance indicators were "on average" less common than social performance indicators. According to Ahmed (2019), the low level and quality of EAR is caused by factors, such as lack of public awareness, absence of regulations, lack of training programs, lack of environmental accounting and disclosure programmes, difficulties with measuring environmental costs, and lack of accountability and transparency. These shortcomings arise because most of the companies were unlikely to disclose information about any environmental damage. Therefore, recommendations have been frequently released to encourage the Palestinian universities to help business entities to adapt to the EAR practices (Ahmed 2019).

Given the additional political complexities that occupation brings, while companies might be willing to develop EAR practices, the instability in the area as well as business restrictions makes it hard for these companies to develop such practices. This means that Palestine is a special case with regard to EAR since the impediments there are different from other Arab countries in the MENA region.

Practices of environmental accounting and reporting in GCC countries and Iraq

In comparison with other places in the MENA region, GCC countries have been given considerable attention by EAR researchers during the last two decades. Most of the studies have focused on the whole region (i.e. GCC countries as a part of the MENA) rather than on individual country (see, e.g., Akrout and Ben Othman 2016; Eljayash 2017; Arayssi et al. 2020). Attention in this part of the chapter will be given to explore EAR practices in GCC countries and Iraq.

Kuwait

Kuwait is a wealthy "petroleum-based" economy. Globally, the Kuwaiti dinar is the highest valued unit of currency, and the country is the fourth richest in the world per capita (World Bank 2020a). The country has an active capital market with a mixture of large businesses being listed (mainly non-petroleum industries and financial services). During the last decade, practices of EAR have significantly developed within the Kuwaiti business environment. Regulations have played a key role in this regard through addressing environmental violations and enforcing environmental compliance in the country. The most influential environmental "business-based" regulations are the following: (1) Act No. 210 of 2001 Public Authority for Environment, which was established to preserve the environment from pollution caused by the companies' operations; (2) the Environmental Protection Law No. 42 of 2014 which provides guidelines to improve the environmental management and accounting in Kuwait; and (3) the Environmental and Social Impact Assessment System, which requires listed firms to voluntarily disclose the assessment of the impact of their economic activities on the environment and society. Requirements of these environmental regulations increase the costs of compliance especially on environmentally sensitive firms in Kuwait (Gerged et al. 2018).

Saudi Arabia

Saudi Arabia economy is the largest in the MENA region (World Bank 2020a).[3] The country is part of the G20 group of countries, and it is the largest exporter of petroleum products and the second largest oil reserves holder in the world (US$33 trillion). Saudi Arabia holds 25% of the world's oil reserves (Anthony 2019). The industrial sector (incorporating oil and gas) in Saudi Arabia is considered the biggest contributor to the national economy (representing 60% of the total gross domestic product [GDP]).

Prior to mid-1990s, environmental regulations did not exist in Saudi Arabia, but in recent years, the country has focused more on the environmentalism. Three main developments have recently taken place (Abdull Razak et al. 2019):

- Establishing nine new environmental laws, passed in 2012 by the government
- In 2014, a Royal Decree demanded that all companies have five years to meet the new environmental standards relating to air, water and noise pollution
- All the business projects are required to fit into the Saudi's *Plan for International Development,* which, in turn, advises companies to meet the international benchmark standards (such as the GRI) as part of Presidency of Meteorology and Environment's environmental plan.

Regardless, a study in 2018 of energy and materials consumption by publicly listed companies found that the level of environmental disclosure is still low, with a slight improvement in disclosure of environmental compliance with the GRI benchmark (in 26% of the targeted companies), emissions disclosure (20.6%), with the least disclosed information being related to biodiversity and waste (Abdull Razak et al. 2019).

Literature indicates that environmental reporting has improved following the application of Saudi Corporate Governance Code (SCG-2006) in 2007. Habbash (2015) found that, on average and during the period 2006–2011, reporting incidence has increased to 30% of companies governed by the code, which is more than double the 14.61% found by Al Janadi et al. (2013). It has also been found that state and institutional ownership, firm profitability and industry sensitivity were the key factors that positively influence reporting incidence, while the degree of Board of Directors independence, family ownership and firm size were not significant determinants of this type of reporting (Habbash 2015).

United Arab Emirates

According to the World Bank (2020a), the economy of the UAE is the second largest in the MENA region (after Saudi Arabia), with GDP of US$414 billion (AED 1.52 trillion) in 2018. The country has been successfully diversifying its economy, particularly in Dubai where tourism, real estate and other supportive services have grown significantly in recent years. Other emirates (namely, Abu Dhabi) still remain heavily reliant on revenues from petroleum and natural gas (World Bank, 2020a).

In 2008, Abu Dhabi Sustainability Group (ADSG) was founded by the Environment Agency-Abu Dhabi (EAD),[4] with an objective of raising sustainability awareness among the companies, as it promotes transparency and encourages companies to report on their sustainability practices. Among their significant achievements, ADSG issues an annual report that reviews companies' management of sustainability and also provides recommendations for the future. The sustainability disclosure focuses mainly on environmental and energy disclosure items.

Further to the ADSG initiative (2008), the Abu Dhabi Securities Exchange (ADX) recently released the *Environmental, Social and Governance (ESG) Disclosure Guidance for Listed Companies*. ADX (2019) stated that it has developed this disclosure guidance to generally support the listed companies' sustainability reporting journey, and to support the voluntary disclosure of ESG information in particular.[5] Given the fact that the two above indicated initiatives (i.e. ADSG and ADX ESG Code) have recently been launched, no evidence has yet been provided by the literature on their value to the sustainability/environmental reporters.

Among very limited studies available from the UAE, Nobanee and Ellili (2016) investigated the sustainability reporting (including environmental) of the UAE banking sector. All listed banks in the country's financial markets during the period 2003–2013 were analysed. The results indicated that the overall level of sustainability disclosure (including environmental) is at a low level. Interestingly, results of that study revealed that the degree of the corporate sustainability disclosure of the conventional banks is higher than the Islamic banks (Nobanee and Ellili 2016). It has been concluded from this study that the sustainability disclosure significantly and positively affects the banking performance of the conventional banks while no significant effect was noted on the performance of the Islamic banks.

Other GCC countries

According to some studies, practices of EAR in other GCC countries (i.e. Bahrain, Oman, and Qatar) are not different from those practices observed in other countries in the region, that is, the level is low (Naser et al. 2006; Eljayash et al. 2012). Naser et al. (2006) conducted a study in Qatar regarding environmental disclosure produced by the listed companies in Doha Securities Market (DSM). The results indicated that there are variations in corporate environmental disclosure in the sampled companies associated with firm characteristics (such as size and business risk). It has also been noted that some national oil and gas large businesses (in Qatar, Saudi Arabia, and UAE) had provided a quality of environmental disclosure higher than similar businesses in other countries. In addition, Jahmani (2014) examined the publicly listed companies in Bahrain Bourse in 2012 and found that 57% of the sampled listed companies provided social and environmental information in their annual reports and their websites. It has been concluded that banks and insurance companies were the most frequent disclosers, while the least disclosure was made by service-based companies (e.g. hotels and tourism sector) as well as the industrial sector.

In the GCC context, it should be indicated that at present there is no generally accepted set of standards or benchmarks proposed for the purpose of preparation of environmental (or sustainability) reporting.

Iraq

The economy of Iraq heavily relies on the oil industry. According to OPEC (2020), oil is responsible for over 65% of the Iraqi GDP, and it is the main element in the country's export income. Oil provides almost 90% of the governmental revenue.[6] In terms of environmental challenges facing Iraq, Price (2018) asserted that Iraq faces serious environmental problems. These involve poor water quality, air pollution, soil salinity, conflict pollution to the deterioration of key ecosystems, climate change impacts, and threat of water shortages.

There is a limited amount of research related to EAR practices in Iraq. It could be argued that this is caused by the unstable political situation, internal conflict, and the "brain drain" from the country related to these factors. In those studies that have been undertaken into voluntary disclosure (including environmental information), low levels of corporate disclosure have been found. In general, Iraqi companies tend to disclose the mandatory requirements in their annual reports rather than voluntary information (Almagtome et al. 2017). According to the previous studies, firms operating in environmentally sensitive industries tend to disclose more voluntary information than other companies. In terms of the sector of the reporting companies, literature has indicated that banking, tourism and manufacturing industry took the first three ranks, respectively, while the last rank was for financial investment industry. Low levels of disclosure by oil and refining companies have also been documented (Thabit and Jasim 2016). Furthermore, in a cross-regional analysis it has been found that Iraqi companies' corporate voluntary disclosure is low in comparison to other developing countries, such as Iran, Egypt, Jordan, Bangladesh, and Malaysia (Almagtome et al. 2017).

Practices of environmental accounting and reporting in North Africa (Arab countries)

In this section, literature related to Arab countries in North Africa will be examined as a whole because the majority of the research produced in this sub-region of MENA was comparative in nature (usually, comparing practices of business entities in Egypt, Libya, and Tunisia). The North Africa "Arab countries" have been significantly impacted by the Arab Spring (started in 2010). Egypt, Tunisia, and Libya have witnessed a change in the governance system due to popular revolutions in 2011 that became known as "revolutions of the Arab Spring" (Eljayash 2015). According to the literature, in the last two decades, the importance of environmental activities and issues has increased, especially in environmentally sensitive industries within the region (Eljayash 2015).

Despite the increasing trend in researching EAR practices in this region, it is ultimately noted that attention on this area of research is still weak in comparison to other regions in the world. In terms of environmental concerns facing these countries, these are the same as others in the MENA region and include desertification, soil erosion, water pollution, air pollution, and waste management (Abumoghli and Goncalves 2020).

The oil and gas industry is the most frequently investigated sector among other business industries (see, e.g., Eljayash et al. 2012; Eljayash 2015). Empirically, it has been shown that environmental disclosure in annual reports has increased in national oil and gas companies. It has been also noted that EAR is found more frequently in Egypt than in the firms in Libya and Tunisia. Likewise, the quality of EAR has increased in the three countries, with the largest increase arising in Egypt (Eljayash 2015). In comparison with other countries in the MENA region, literature suggests that the EAR produced by oil and gas firms in Egypt, Libya, and Tunisia, for instance, is less than other companies operating in the region. Moreover, even though the quantity of EAR slightly improved in the oil and gas companies in Egypt, Tunisia, and Libya, the environmental information is more descriptive than quantitative (e.g. less quantitative key performance indicators [KPIs] are disclosed).

Within the Egyptian context, and for reform purposes, Aboud and Diab (2018) provided feedback to regulators and standard-setters in the developing countries, and more specifically the Egyptian regulators, on the benefits associated with the introduction of a sustainability index (i.e. Standard & Poor's EGX ESG index).[7] This feedback clarifies how the government's efforts to promote ESG benefited businesses (namely, publicly traded firms; see Aboud and Diab 2018).

In the Libyan context, very limited studies have been conducted on EAR. Elmogla et al. (2015) examined a sample of 270 annual reports from 54 companies (both public and private) from different business sectors for the years 2001–2005 and found that the Libyan companies generally disclose some information related to social responsibility (including environmental information) but at a low level in comparison to developed countries and only on certain topics, and this situation changed little over the five-year period under investigation.

In the Tunisian context, literature suggests that industrial firms with higher sensitivity to environment tend to provide more disclosure (which includes environmental information) than industrial firms that are less environmentally sensitive (Eljayash 2015). This finding is supported by Belhaj and Damak-Ayadi (2011), who reported that of 500 largest Tunisian firms only 53 published environmental information in their annual reports or even on their websites. Chakroun and Matoussi (2012) noted that Tunisian non-financial businesses tend to disclose more mandatory information, and these businesses (non-financial) also tend to disclose voluntary information closely linked to mandatory disclosure. This may raise concerns about the importance of the process of mandating disclosure of important environmental concerns.

Discussion and conclusion

This section presents key findings as well as identifying ideas for potential future research on the area of EAR in the MENA region. Despite the extent of the environmental threats facing this region, the MENA region has less EAR practice and research than other parts of the world

(Habbash 2015; KPMG 2015, 2017). From the author's perspective, the factors behind this weakness could include the following:

- Regional causes, represented by instability, political conflicts, and weak intra-regional ties
- Poor practices of EAR by the reporting business entities due to absence of public accountability and transparency, incomplete/absence of regulations, absence of regional-based benchmark/standards that simulate the nature of the region and its culture, and premature of organisational culture
- Weaknesses in the research and educational infrastructure, including lack of specialised databases and research centres, absence of academic enthusiasm to conduct empirical and theoretical research in this area, lack of the EAR topic on the accounting curricula within the educational institutions
- Absence of the public interest in general, due to prioritising other societal needs such as fighting poverty, jobs creation and fighting unemployment, and inefficient and weak role of media, and
- Finally, the lack of accounting research into these factors in MENA published environmental accounting research.

These factors can also be transformed with the aim of changing societal values and culture (including business values) towards educating society in environmental issues and improving practices of EAR premised on increasing demands of citizens for corporate accountability.

In terms of the thematic research aspects covered by the literature, which to some extent pointed out the key determinants of EAR practice in the region, this chapter identified four main thematic areas investigated. These include ownership structure, characteristics of the reporting companies, national contextual determinants, and governance attributes and board of directors' characteristics. These aspects have also been examined in academic literature in other regions of the world; thus, they have been re-examined employing the same methodologies in the MENA region. In this context, it has been noticed, for example, that more literature has been produced in Egypt, Jordan, and Saudi Arabia in comparison to other countries in the region. This can be referred to political stability, capacities of the educational institutions, and motivation of the researchers.

Given the importance of the MENA region, where 51% of the world's oil and gas reserves are located (OPEC 2020), the oil and gas industry along with other related industrial sectors is the most examined among all other businesses. However, environmental reporting produced by these businesses is still lagging behind similar businesses in the developed countries. In the same context, it has been concluded that there is a difference between the reporting companies and even between the MENA countries in the quality and quantity of ER (Gerged et al. 2018). In this regard, it has been suggested that innovation can be spread quickly and in "a consistent manner due the cultural similarities and economic connections across the region, especially if they take place in leading countries such as Egypt and Saudi Arabia" (Gerged et al. 2018, p. 583).

In parallel with the improved levels of practising EAR by the reporting companies, it has been observed that research in this area has been excessively improved. However, and from the author's point of view, the following aspects/factors/dimensions were missed or considered as "under researched" by the EAR research conducted in the MENA region:

- Employing well-developed different theoretical frameworks to empirically examining the business practices of EAR
- Investigating stand-alone environmental/CSR/sustainability reporting practices

- Examining web-based (online) environmental/CSR/sustainability reporting practices
- Exploring stakeholders' role/engagement in EAR practices, and investigating their perspectives on these practices
- Examining the impact of the international generally accepted benchmark/standards over the EAR practices in the MENA region (e.g. GRI and the SDGs)
- Investigating value-added of the regionally based developed ESG codes/indices (e.g. ADX ESG Disclosure Guidance, and Standard & Poor's EGX ESG index)
- Environmental management accounting and assurance practices and
- Critically examining why EAR is a weak research area in the MENA region.

It can be concluded that the above research shortcomings are areas of future research in the area of EAR in the MENA region.

Notes

1 The base of this comparison is 4,900 N100 companies where the MENA region represents 8% of the regional sample.
2 Under this fundamental regulation (*Environment Protection Law* No. 52, 2006 – provisionally issued in 2003) and for the purpose of providing a practical framework for controlling resources as well as managing the environmental impact of entities, the Jordanian government issued in 2005 the following supplement environmental related implementation rules relating to: Environmental Impact Assessment; Air Protection; Soil Protection; Protecting the Environment from Pollution in Emergency Situations; Natural Reserves and National Parks; Management of Solid Waste; and Management of Hazardous Materials, their Moving and Circulation.
3 In 2016, the Saudi government launched its *Saudi Vision 2030,* which aims to reduce dependency on oil, and thus diversify its non-oil revenue and other economic resources.
4 The Environment Agency-Abu Dhabi (EAD) is a governmental agency established in 1996 in Abu Dhabi, UAE. In its mission, the agency is committed to protecting and managing biodiversity, providing a clean environment and promoting sustainable development in the Emirate of Abu Dhabi. Further details are provided on their website (www.ead.gov.ae/en).
5 ADX (2019) confirmed that this voluntary guidance provides ADX's listed companies with 31 ESG indicators that are considered essential to report in alignment with the recommendations of the Sustainable Stock Exchanges Initiative and the World Federation of Exchanges. According to the ADX, the indicators are also mapped against Global Reporting Initiative (GRI) indicators and the Sustainable Development Goals for companies willing to adopt more detailed sustainability reporting standards that go beyond the proposed framework (ADX 2019).
6 According to OPEC (2020), petroleum industry constitutes 97% of the Iraqi exports, with a value of US$80.02 billion in 2019.
7 Standard & Poor's EGX ESG: Standard & Poor's – Egyptian Stock Exchange Environment, Social and Governance.

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