**17 PARTNERSHIPS FOR THE GOALS**

# SDG 17

**Strengthen the means of implementation and revitalize the Global Partnership for Dustainable Development**

# Introduction

SDG 17 "Partnerships for the goals" is an overarching goal that emphasizes global and regional cooperation, interdependence, and shared and differentiated responsibilities for transformative change. It focuses on the means of implementation of the 2030 Agenda, which are influenced by multilateral partnerships and international frameworks, such as the Addis Ababa Action Agenda on financing for development. SDG 17 addresses global dynamics shaping flows of financial resources, technology and knowledge, and seeks to strengthen the coherence of partnerships that make them possible.

Shared responsibility and cooperation, knowledge and technology transfer, and inclusive financing are crucial for reducing inequalities among countries. They can have ripple effects in driving regional and global progress on SDG implementation, accelerating efforts to address common priorities such as water management, food security, climate change and peacebuilding. In that regard, stronger regional integration can support achievement of the vision for sustainable development articulated by the 2030 Agenda.

This chapter focuses on three crucial dimensions of SDG 17, namely **(1) finance, (2) technology, and (3) data, monitoring and accountability.** Other important aspects, such as capacity-building, policy and institutional coherence, and multistakeholder partnerships, are addressed as transversal themes across the thematic chapters of this report.

# Finance

## A.  Introduction

The Arab region faces significant challenges in achieving SDG 17 targets on financing for sustainable development amid massive resource requirements[1] and a context of shrinking fiscal space. Many countries have struggled to maintain fiscal sustainability in the face of rising debt loads and fluctuating commodity prices, challenges worsened by successive shocks stemming from the COVID-19 pandemic, the economic consequences of the 2022 escalation of the war between the Russian Federation and Ukraine, rising interest rates and a global acceleration of inflation. These crises have aggravated pre-existing vulnerabilities, including high debt service costs and insufficient domestic resource mobilization capacities, and jeopardized governments' abilities to finance policy measures to realize the 2030 Agenda.

Achieving fiscal sustainability will require action by national Governments and the international community. Countries will need to implement integrated national financing frameworks to bolster resource mobilization capacity, create fiscal space to maintain social spending, safeguard economic stability, and ensure well-targeted, equitable, efficient public spending decisions that maximize development outcomes and accelerate progress on the 2030 Agenda.

At the global level, it is crucial for countries that provide official development assistance to fulfil their funding commitments and for stakeholders to work towards a more equitable and sustainable international financial architecture, including the design and implementation of effective debt relief mechanisms.

# What the data say

Although regional data for most SDG 17 indicators related to financing are unavailable, related figures illustrate the challenges Arab countries face in sustainably financing development:

**Public debt** has ballooned across the region, growing from an estimated 10 per cent of GDP in 2008 to around 47 per cent in 2023, and has been accompanied in many cases by unsustainable debt servicing burdens. There is significant variation among countries and subregions, with the problem being particularly acute for middle-income and least developed countries.[2]

**Table 17.1**
Debt projections by subregion, as percentage of GDP

|  | 2023 | 2024 | 2025 |
|---|---|---|---|
| All Arab countries | 46.8 | 46.1 | 45.8 |
| Gulf Cooperation Council countries | 30.9 | 31.9 | 32.2 |
| Middle-income countries | 71.1 | 67.4 | 64.9 |
| Least developed countries | 78.0 | 70.3 | 70.4 |
| Conflict-affected countries | 52.1 | 55.0 | 58.7 |

**Sources**: Data from ESCWA, 2023c; ESCWA projections based on the World Economic Forecasting Model, 2023.

**Foreign direct investment** inflows in 2022 amounted to $53.8 billion, nearly 40 per cent below their 2008 peak.[3] More than 90 per cent of these inflows went to just five countries **(Egypt, Morocco, Oman, Saudi Arabia** and the **United Arab Emirates);** 45 per cent of which went to extractive industries. The region sees $1.50 in foreign direct investment outflows per $1 in inflows, rendering it a net exporter of capital.[4]

Tax systems in the region are subject to multiple distortions and leakages, and suffer from high rates of tax evasion and abuse. The region has a substantial tax gap (the difference between what should be collected based on prevailing tax rates and what is actually collected). **Tax gaps** amount to 15 per cent of non-oil GDP in hydrocarbon-exporting countries and 17.9 per cent in hydrocarbon-importing countries. An estimated $8.9 billion in annual revenues is lost due to corporate tax abuse, while tax competition cost the region an estimated $50 billion between 1980 and 2020.[5]

In 2022, **incoming personal remittances** amounted to 2.1 per cent of GDP at the regional level. Remittances are particularly significant outside the Gulf Cooperation Council subregion, accounting for approximately 4 per cent of GDP in the Maghreb, 4.9 per cent in the least developed countries and 5.2 per cent in the Mashreq.

**Illicit financial flows** are a major contributor to lost revenue in the region, with **trade mis-invoicing** alone accounting for an estimated $77.5 billion in foregone revenue collection. This number is greater than both foreign direct investment and official development assistance inflows to Arab countries, and is estimated to impact at least 8.2 per cent of the region's non-oil trade.[6]

**Net official development assistance disbursements to the region from the Organisation for Economic Co-operation and Development (OECD)-Development Assistance Committee (DAC) countries totalled $13.9 billion in 2022.** While this represents an increase of 26 per cent relative to 2013 levels (when aid amounted to roughly $11 billion), it is roughly equivalent to the amount received from OECD-DAC countries in 2016. Since then, aid inflows to the region from these countries have fluctuated, peaking at $16 billion in 2020, followed by consecutive declines in 2021 and 2022. Of gross aid disbursed to the region from OECD-DAC countries in 2022, 74.9 per cent was grant funding and 31.4 per cent was humanitarian assistance, both the lowest proportions since at least 2012. Of the gross assistance inflows disbursed from these countries to the region in 2022, 26.8 per cent was disbursed to the least developed countries and 55.8 per cent to countries in conflict. Of non-humanitarian assistance, 16.6 per cent went to the least developed countries and 42.5 per cent to countries in conflict.

Although there is significant variation among OECD-DAC countries, as a group, they contributed official development assistance equivalent to 0.36 per cent of their gross national income in 2022, far less than the targeted level of 0.7 per cent endorsed in multiple agreements, including in SDG target 17.2. If OECD-DAC countries fulfilled their commitment, the region would have received an additional $24 billion in development financing, assuming an unchanged distribution across recipient countries globally.[a]

Within the Arab region as elsewhere, the role of non-traditional donors in development financing is increasingly significant. While OECD-DAC countries provided roughly 49.5 per cent of total official development assistance inflows into the region in 2013, this figure has steadily declined, with this group accounting for just 42.2 per cent of the $33 billion in total assistance received in 2022. The Gulf Cooperation Council countries have emerged as major sources of support to countries within the Arab region and beyond. Kuwait, Qatar, Saudi Arabia and the United Arab Emirates collectively accounted for nearly $9 billion in worldwide net official development assistance in 2022.

**Sources:** OECD Stat, "Aid (ODA) disbursements to countries and regions [DAC2a]", accessed on 18 April 2024; OECD, 2023b.

[a]  Based on the Arab region receiving an average of 11.5 per cent of net official development assistance from OECD-DAC countries between 2013 and 2022.

**Regionally, more data are needed to fully understand progress on SDG 17 targets related to financing. Indicators on resource mobilization and budgeting are particularly difficult to track as data are often not publicly released, highlighting a need for increased fiscal transparency.**

**For an up-to-date view of the SDG 17 data on finance at the national and regional levels and an analysis of data availability, please refer to the ESCWA Arab SDG Monitor.**

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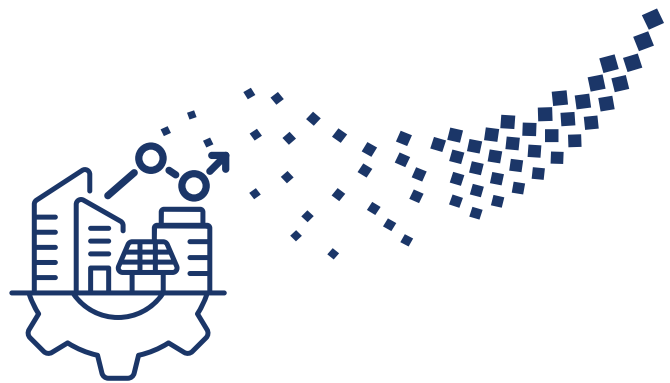
## On the road to 2030 – suggested policy approaches to SDG financing in the Arab region

- Urgently adopt debt management strategies to ensure the sustainability of public finances. Measures should include enhanced coordination between monetary and fiscal policies, improving data to ensure evidence-based borrowing, strengthening domestic bond markets to reduce reliance on external debt, and resource mobilization measures such as those discussed below.

- Actively work with international and regional partners to achieve reforms to the international financial architecture and business models of multilateral development banks. This must include fair debt relief and restructuring procedures, more favourable borrowing terms for developing countries, equitable access liquidity support during crises, and greater representation in the governance of international financial institutions.

- Avoid the evolution of debt crises into social crises by prioritizing social expenditures that provide support and services to populations at risk of being left behind and facilitate social mobility.

- Develop and implement integrated national financing frameworks that identify resources needed to realize the 2030 Agenda and include actionable measures to align financing and other means of implementation to achieve the SDGs.



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- Adopt budget reforms and fiscal policies to improve the efficiency of public expenditures, including through measures to increase the transparency of budgeting processes and track the impact of spending on SDG progress.

- Rationalize tax incentives and systematically conduct cost-benefit analyses and evaluations to ensure that measures achieve their intended purposes and maximize the positive long-term effects of investment.

- Strengthen the enforcement of tax policies to reduce tax leakages and evasion, adopt measures to increase the equity of resource mobilization policies, and align resource mobilization policies with sustainable development priorities.

# B. The policy landscape

Several common trends are evident in the efforts of Arab countries to finance sustainable development.

◆ **Many least developed and middle-income countries are developing and implementing integrated national financing frameworks to better align budgetary decisions with development priorities.** The frameworks are valuable tools for implementing the Addis Ababa Action Agenda at the national level and for supporting SDG achievement by ensuring that policies and reforms align financing and other means of implementation to achieve sustainable development priorities. Integrated national financing frameworks can improve the coherence and complementarity of financing from different sources, and increase the capacity to make risk-informed spending decisions during crises.[7] They help to bridge the gap that

often exists between national development plans and efforts to mobilize the financial resources needed to achieve them. Establishing integrated national financing frameworks requires complete assessments of local financing contexts and needs, actionable sustainable development financing strategies, effective monitoring and evaluation frameworks and administrative capacity for implementation.[8]

Eight Arab countries (the **Comoros, Djibouti, Egypt, Jordan, Lebanon, Mauritania, Morocco** and **Tunisia)** have reported progress on developing such frameworks to the Integrated National Financing Framework Facility. Most countries remain at early stages of the process, aiming to develop a costing of resources needed for

SDG achievement; incorporate SDG and national development plan targets into spending decisions and budgetary processes; prioritize key sectors and groups at risk of being left behind; strengthen policy coherence; and mobilize and ensure the coherence of various financing sources, including public expenditures and private investment.[9]

◆ **Countries have introduced budgeting reforms, but they remain limited in scope and transparency.** Although no country in the region has shifted towards an SDG budgeting model that explicitly plans and tracks expenditures according to the Goals, many countries have launched reforms to improve public sector performance by shifting the focus of budgetary processes from fiscal inputs to achievements and outputs, through approaches including results-, performance- and programme-based budgeting. Although there are nuances among these approaches, they all involve identifying performance objectives and indicators to be achieved with allocated funds, with recipient entities generally enjoying somewhat more flexibility in how resources are directed to realize objectives compared to line-item budgeting approaches. Such efforts can support budgeting for the SDGs and enhance monitoring and evaluation by using national development targets as indicators during the budgeting process.[10] Reforms to move towards such models have been launched in **Algeria, Egypt, Jordan, Mauritania, Morocco, Oman, Palestine, Qatar** and **Tunisia.**

Other tools have been utilized to respond to specific policy objectives. For instance, **gender-responsive budgeting processes** determine the extent to which fiscal policies advance or detract from gender equality, including by mainstreaming a gender perspective at all levels of the budgetary process and using insights to structure revenues and expenditures accordingly.[11,12] Such methodologies have been employed to varying extents in at least seven countries in the Arab region (including **Bahrain, Egypt, Iraq, Jordan, Morocco, Palestine** and **Tunisia**), often with the involvement of national women's machineries. Although the scope of such efforts varies considerably, common features include measures to ensure equal opportunity within the public sector, the development of performance indicators and sex-disaggregated data, and allocations made according to identified needs. Despite such efforts, serious gaps persist in gender-responsive budgeting efforts (see the chapter on SDG 5).

Despite reforms, budget processes in the Arab region are frequently characterized by limited public participation, poor oversight and a general lack of transparency, which constitute policy gaps that inhibit effective SDG financing. In many countries, budget documents and audit reports are unavailable to the public, difficult to access or published with delays. Most countries in the region rank poorly on the International Budget Partnership's Open Budget Survey.[13]

◆ **Amid rising debt burdens, Governments across the region have enacted tax reforms to improve their fiscal positions.** Tax rates are generally low, with the regional tax-to-GDP ratio standing at just 8 per cent in 2019. This is far below the global median rates of middle- and high-income countries, which were 18 and 25 per cent, respectively, during the same period.[14] This regional average, however, disguises significant variations among country groups. While tax-to-GDP ratios in middle-income countries average around 20 per cent, the proportion averages below 5 per cent in the Gulf Cooperation Council countries.

Recent years have seen the introduction of new taxes and modifications to existing tax rates to expand the role of taxation in revenue generation. A notable example has been the introduction of value-added taxes in **Bahrain, Oman, Saudi Arabia** and the **United Arab Emirates** following a 2016 agreement among the Gulf Cooperation Council countries that has led to diversified revenue and an increased role for taxation in public financing. Direct taxes, such as personal and corporate income taxes, have remained limited, however.[15] Many middle-income and least developed countries, which derive much larger proportions of their budgetary resources from taxation, have also sought to increase revenues through adjustments to tax rates. For instance, within the past decade, value-added and sales taxes, which constitute the majority of tax revenues in most of these countries, have increased in **Algeria, Egypt, Lebanon, Mauritania, Palestine** and **Tunisia.**[16]

**Several countries have raised their top-tier tax rates for corporate and personal income taxes.** In the past 10 years, **Egypt, Jordan, Lebanon, Mauritania** and **Tunisia** each increased their highest personal marginal tax rates, while **Algeria, Jordan, Lebanon** and the **State of Palestine** raised the highest applicable corporate income tax rates. The tax bases of many countries remain extremely narrow, however, as large numbers of earners either do not carry any tax liability or operate outside the formal tax system. Further, tax increases have not necessarily yielded equivalent increases in revenue, as weak enforcement capacity, numerous exemptions, high levels of informal economic activity, low compliance rates and various forms of tax abuse undercut the efficiency of tax administrations. Consequently, **the shares of both personal and corporate income taxes in total tax revenue have not significantly changed in most countries, despite reforms.**

Even administratively simpler taxes, such as value-added taxes, suffer from considerable inefficiency, resulting in significant revenue losses. If Arab countries were to improve value-added tax efficiency to the average level of OECD countries, revenue raised from such taxes would increase by as much as 47 per cent in some countries. Increasing tax efficiency requires, among other elements, a greater capacity to enforce policy, including through better data collection; a careful analysis of the coherence of tax incentives; and a track record of effective social investment that improves the quality and availability of public services to demonstrate value, build trust and create buy-in among taxpayers while reducing tax evasion.[17]

As outlined in the chapter on SDG 10, **tax policies and reforms in the region have not been optimized for addressing inequality,** as regressive indirect taxes, such as value-added taxes, continue to predominate in the tax revenues of most middle-income and least developed countries, representing 40 to 50 per cent of total tax revenues in **Egypt, Lebanon, Morocco** and **Tunisia;** 50 to 60 per cent in **Mauritania** and **Palestine;** and over 70 per cent in **Jordan.** Despite an increasing concentration of wealth among the richest people in the region, countries have adopted very few measures to tax wealth.[18]

State-owned enterprises are prominent in Arab economies. Although some stand out for their remarkable performance, in many cases, they have low productivity and competitiveness. State-owned enterprises play a significant but often non-transparent role in public financing through investment and quasi-fiscal activities such as lending or providing goods and services at below-market prices.

Frequently, extensive support measures, guarantees and subsidies allow state-owned enterprises to operate under "soft" budget constraints, leaving Governments liable for shortfalls. Many operate at a loss and carry substantial debt loads, and in some countries, direct fiscal support to these enterprises rivals spending on health or education. The substantial risks and opportunity costs that underperforming enterprises can pose to national budgets underscore the need for reform, fiscal transparency and risk management frameworks to avoid burdening public treasuries and crowding out private activity.

**Sources:** ESCWA, 2023b; IMF, 2021.

◆ **In the face of a growing SDG financing gap, Governments are turning to the private sector to mobilize additional resources. To this end, an increasingly popular tool has been the use of public-private partnerships (PPPs).** PPPs are agreements between public entities and private companies to finance, build and operate projects, often through initial private funding that is subsequently compensated through operating revenue, tax concessions or other incentives. While such partnerships can accelerate the financing and implementation of critical projects, they also carry risks. These include risks of increased long-term costs to the public; corruption, rent-seeking and capture of public resources; reduced transparency; and distortions of policy priorities to enhance the commercial viability of projects. Accordingly, such projects must be carefully designed and regulated by legal and institutional frameworks to ensure continued prioritization of long-term development objectives.

**As of 2023, 15 Arab countries had adopted dedicated laws to govern the implementation of PPPs,[19] while at least another 3 were developing such legislation.** In countries without dedicated PPP legislation, such projects are typically governed by public procurement law, although in some countries, executive decrees have been issued on the subject in the absence of a law. In addition to legislative frameworks, some countries have established dedicated PPP units within their administrations to promote, facilitate and evaluate private sector collaborations. Countries with such structures include **Egypt, Jordan, Kuwait, Lebanon, Morocco** and **Saudi Arabia.**

Overall, PPPs in the region have yet to have a transformational impact on SDG achievement. A review of recent data on low- and middle-income countries found a heavy concentration of PPPs geographically and by sector – 85 per cent of infrastructure projects targeted just three countries **(Egypt, Jordan** and **Morocco),** and 94 per cent were in the energy or transportation sectors.[20]


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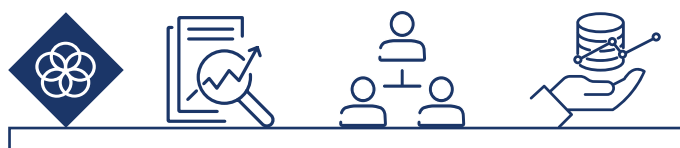
◆ **Other efforts to stimulate private development financing have included the issuance of sustainable use-of-proceeds bonds (such as green bonds or social bonds) to raise funds for projects related to SDG achievement.** Between 2015 and June 2022, the region raised $14.4 billion in proceeds from such instruments, mostly after 2018. **Qatar, Saudi Arabia** and the **United Arab Emirates** have issued 91 per cent of sustainability bonds, and 84 per cent were categorized as green bonds.[21] Most sustainability bonds are issued by corporations or government-linked entities. **Egypt** is the only country to have issued sovereign green bonds, with proceeds directed towards financing transportation, water and sanitation projects. Despite growth in sustainable use-of-proceeds bonds, they are still a relatively small part of the regional SDG financing landscape. The region accounts for 0.5 per cent of the global total of such bonds, trailing every developing region except sub-Saharan Africa.

The private sector in the Arab region remains less effective in mobilizing investment than in other developing regions, and total investment has gradually fallen since 2010. While data were only available for six countries, from 2015 to 2018 the private sector in **Bahrain, Egypt, Jordan, Lebanon,** the **Syrian Arab Republic** and the **United Arab Emirates** made investments equivalent to 12 per cent of GDP, significantly lower than the East Asia and Pacific rate of 34 per cent, and even lower than the global least developed country average of 21 per cent. Poor rates of investment reflect the need to establish an enabling environment, including by stabilizing foreign exchange reserves, reducing borrowing costs, and ending political turmoil and protracted conflicts.[22]

◆ **While countries have sought to spur investment through tax incentives, such efforts have largely fallen short of their potential to raise resources for sustainable development financing.** Many Governments have offered generous tax incentives and established special economic zones to promote investment activity (see the chapter on SDG 8 for additional analysis). Tax holidays are a particularly common instrument, with most countries offering schemes that exempt profits derived from eligible investments from corporate income taxes. In some cases, such benefits are extended to incentivize the development of particular sectors – for instance, **Algeria** and **Jordan** have offered reduced tax rates on medical goods, and both **Lebanon** and **Tunisia** offer exemptions for eligible investments in education, health and agriculture. Tax incentives are frequently extended to exporters, although sometimes they are limited to companies operating in special economic zones or free zones catering to international markets, or restricted to specific sectors such as finance, logistics or manufacturing. Such zones have been established in **Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Palestine, Saudi Arabia** and the **United Arab Emirates.** In some cases (including **Algeria, Egypt, Jordan, Lebanon** and **Libya**), eligible entities operating in such zones receive permanent tax benefits, while in others, exemptions are time limited.[23]

Some countries have established special taxation regimes or offer tax holidays for domestic and international investments in underdeveloped regions. For instance, **Algeria, Egypt, Jordan, Lebanon, Saudi Arabia** and **Tunisia** have designated specific regions as "development zones" based on socioeconomic conditions, and offer corporate income tax exemptions of 5 to 10 years for eligible activities in such areas. Further incentives often include waivers of certain registration fees and import duties for input materials. Other incentives to further specific policy objectives include outcome conditions for tax exemptions. In **Algeria,** for instance, corporate income tax exemptions of 5 to 10 years are offered for projects creating at least 500 jobs, while other countries (including **Lebanon** and **Libya**) condition investor tax relief on achieving hiring targets for national employees.[24]

Countries have used tax incentives to encourage domestic and foreign investments that advance sustainable development objectives. For instance, nearly all countries have at least one tax incentive designed to encourage investments supporting environmental objectives (such as for renewable energy or pollution reduction projects), and more than half reward investments that boost links with local supply chains. In **Jordan,** a unique tax allowance is extended to firms where at least half of employees are women. Although tax incentives for job creation are relatively common, a few countries also offer breaks linked to upskilling or job quality. For instance, **Morocco** has a reduced tax rate for vocational training establishments. **Saudi Arabia** provides tax exemptions on training expenditures for Saudi nationals employed in qualifying projects. **Egypt** permits a tax allowance for certain firms where employee wages exceed 30 per cent of operating costs.[25]
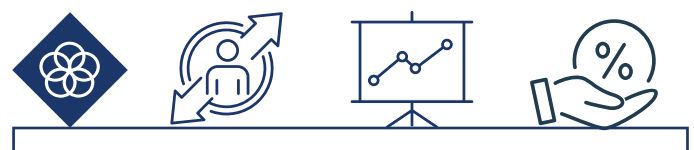
While tax incentives are often designed to attract investment, they are not by themselves sufficient to do so. Factors such as human capital, bilateral trade links, and institutional quality are also important considerations for investors, highlighting interlinkages with SDGs 4, 8 and 16 in rendering the region more attractive to investors. Moreover, tax incentives for investors have undercut corporate tax revenues by an average of 60 per cent in the region, without yielding commensurate increases in economic activity to offset the loss.

**Source:** ESCWA, 2022a, 2022b.

◆ **Net foreign direct investment inflows remain highly concentrated and have a muted impact on growth and development.** They fell considerably from a peak of $89 billion in 2008 to $25.5 billion in 2015, though have steadily increased since then, rising to $53.8 billion in 2022.[26] A limit on the impact of this investment is the fact that the region's capital outflows outpace inflows – on average, the region returns $1.50 in outflows for every $1 gained in inflows.[27] Most outflows entail the repatriated profits of foreign investors, with only modest shares reinvested within the region.[28]

Inflows are highly concentrated in just a few countries: **Saudi Arabia** and the **United Arab Emirates** alone receive 56 per cent of the total. Five countries **(Egypt, Morocco, Oman, Saudi Arabia** and the **United Arab Emirates)** account for nearly 90 per cent. Overall, foreign direct investment does not tend to flow towards places where it is needed the most – 68.5 per cent of net inflows went to the Gulf Cooperation Council countries while only 4 per cent to the least developed countries. This inequity is inconsistent with SDG target 10.b, which calls for increased financial flows to the least developed countries.[29]

Foreign direct investment remains concentrated in capital-intensive sectors that create relatively few jobs. A majority of investments have been in industries that do not generally have strong positive SDG impacts, such as coal, oil and gas, chemicals, mineral mining, and real estate and leisure. These collectively absorb 56 per cent of inbound investment.[30] A review of experiences in eight Arab countries **(Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestine** and **Tunisia)** has found that foreign direct investment largely does not drive transformative development change. It has mixed but mostly unfavourable results in terms of impacts on productivity, employment, skills, gender equality and industries' carbon footprints.[31]
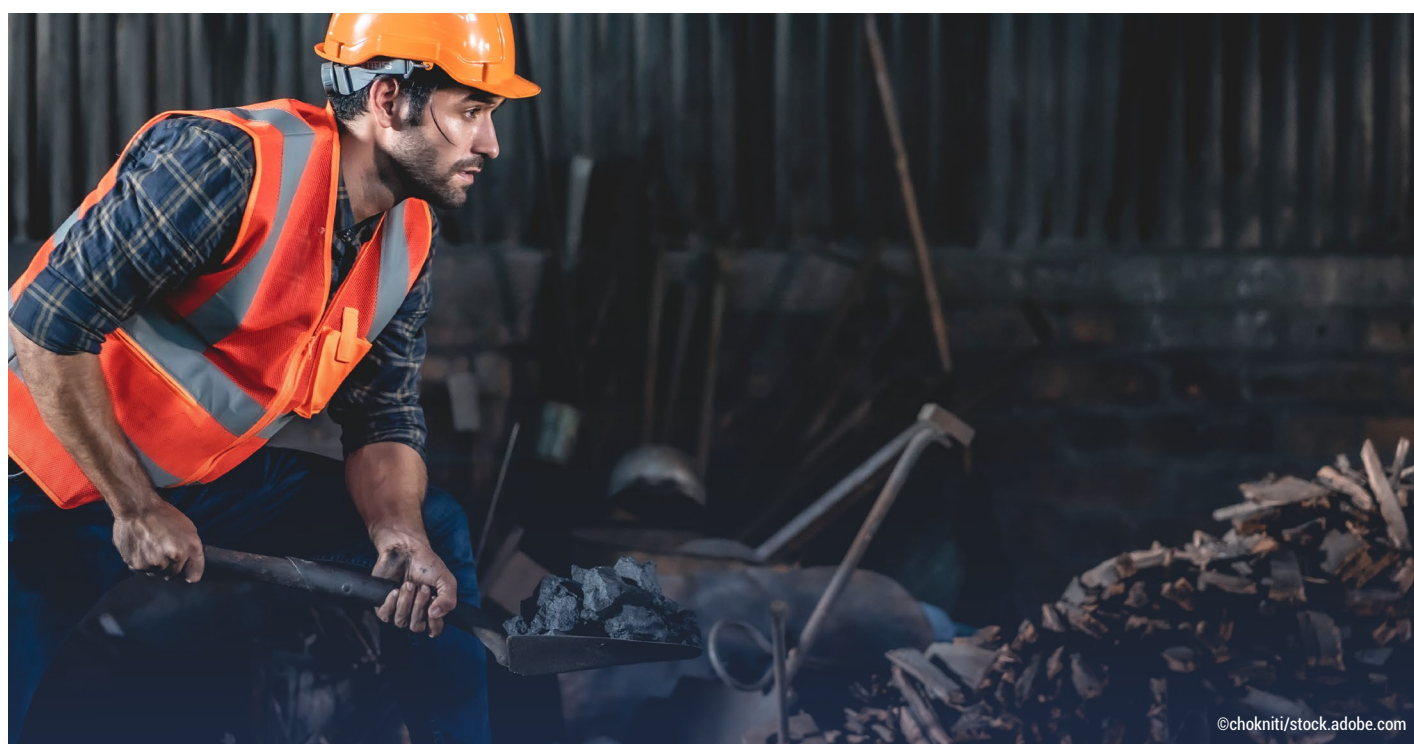


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# C.  Regional dimensions

■ Although resource mobilization challenges in the Arab region require decisive national action, such efforts must be accompanied by **renewed international commitment to sustainable development financing.** In particular, **programmes to restructure debt and reforms to create a more equitable global financial system** could alleviate fiscal constraints in developing countries. Regional cooperation offers Arab countries possibilities to share experiences in managing challenges, capitalize on cross-border networks and **work towards a more equitable international financial system.**

■ Given the increasing complexity of modern economies, the potential benefits of **coordinating tax policies** continue to grow. As mentioned in the chapters on SDG 10 and SDG 16, regional cooperation is essential for countering corporate tax abuse, illicit financial flows and the negative effects of tax competition. The potential boost to resource mobilization is enormous. Working to harmonize tax incentives and other policies can help avoid a "race to the bottom" that diminishes revenues to finance SDG progress and undermines the potential benefits of foreign direct investment.[32]

■ To tackle the growing problem of unsustainable debt burdens, an **Arab Debt Management Group** could be established to serve as an important peer learning platform to exchange best practices on debt optimization strategies. Such collaboration could include improving the quality of debt-related data and sharing strategies for evidence-based borrowing to stabilize debt-to-GDP ratios over the medium term.[33] Countries in the region and international actors could contribute to making debt more sustainable by changing the business models of the multilateral development banks, including through longer loan terms, lower interest rates, greater use of state-contingent clauses, increased lending in local currencies, and innovative financing mechanisms such as debt swaps.[34,35]

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# Technology

## A. Introduction

Digital technology and Internet connectivity sustained business continuity and access to information during the COVID-19 pandemic, shedding light on the importance of solid and upgraded infrastructure, the development of digital products and services, and an enabling regulatory and market environment. Technology supports development projects in all sectors and can help accelerate the implementation of the SDGs.

Arab countries continue to seize opportunities from technology to transform governance and economies. Technology advancement, adoption and use and the amount of investment, however, vary notably among high-, middle- and low-income countries. The digital divide stems from disparities in infrastructure access, language barriers, digital literacy and socioeconomic factors such as wealth, gender and age. It erects barriers to benefits from new technologies, particularly generative Artificial Intelligence (AI), which requires high data availability and computational power as well as advanced digital skills.

## What the data say

*Data included in this section are from the ESCWA Arab SDG Monitor, unless otherwise indicated (accessed in December 2023).*

The number of **Internet users per 100 inhabitants** in the Arab region reached 70.3 in 2022, up from a pre-pandemic value of 55.2 in 2019. This is the largest growth over a three-year period. The current level surpasses the global average of 66.3.

In 2022, the **rate of fixed-broadband penetration** was 10.4 subscriptions per 100 inhabitants, compared to a global average of 17.6. Significant differences exist between the penetration rate in Arab high-income countries (26 per cent) and least developed countries (0.6 per cent).

In 2022, the region had 69.5 **active mobile-broadband subscriptions** per 100 inhabitants compared to a global average of 86.9.[36]

Only four countries **(Oman, Qatar, Saudi Arabia and the United Arab Emirates)** were in the top 50 performers on the **Government AI Readiness** Index in 2023; all are from the Gulf Cooperation Council subregion. **Jordan** came in first among Arab middle-income countries (at a rank of 55 globally). Half of Arab countries are in the bottom 30 per cent, ranking at 120 and below.[37]

**Total trade in tracked environmentally sound technologies** had a regional value of $52 billion, around 2.2 per cent of the global value. Around 81 per cent of regional trade takes place in Gulf Cooperation Council countries.

The **digital divide** persists. Among men in the region, 71.9 per cent were Internet users in 2022 compared to 61.5 per cent of women. Disparities persist between urban and rural areas, with access rates of 79.1 and 49.4 per cent, respectively.

**Subregional disparities** are stark. While the percentage of Internet users in Gulf Cooperation Council countries is close to 100 per cent, the share is only one third of people in the least developed countries.[38]

For an up-to-date view of SDG 17 data on technology at the national and regional levels and an analysis of data availability, please refer to the **ESCWA Arab SDG Monitor**.

## On the road to 2030 – suggested policy approaches to accelerate technology use and development in the Arab region

- Invest in infrastructure development and upgrades, including last mile connectivity, to ensure universal access to the Internet. Such investments are usually secured from national budgets, multilateral development banks or through public-private partnerships.

- Strengthen the regional integration of ICT infrastructure, including linkages and expanded Internet exchange points (IXPs) across the region to enable the direct, low-cost exchange of content. This will reduce reliance on expensive international routes, improve Internet speeds and stimulate local content creation, ultimately lowering costs for users and boosting the digital economy.

- Maximize the potential of a digital transformation approach to accelerate SDG implementation by identifying priority sectors and benefits from digital technologies. This could include, for example, digital banking for financial inclusion (SDGs 1 and 8), precision agriculture (SDG 2), telemedicine or digital health (SDG 3), online and distance learning (SDG 4), ICT for water management (SDG 6), smart grids (SDG 7), e-government and open data (SDG 16) and real-time monitoring and data (SDG 17).

- Invest in energy-efficient programming languages, data centre efficiency measures, tools to optimize the use of the Cloud and guidelines for green digital products to contribute to sustainability in digital technology.[39]



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- Develop national plans for lifelong digital upskilling and reskilling to keep up with emerging technologies, including AI, while guarding against risks and countering or minimizing negative outcomes.

- Ensure that training programmes cater to the needs of Arabic speakers and different demographics, and include people living in rural areas, women and different age groups.

- Integrate assistive technologies into e-services to facilitate access for people with disabilities, and adopt "leaving no one behind" as a guiding principle of e-government programmes.

- Institutionalize the process for generating digital Arabic content in all sectors and provide necessary elements, including partnerships and networking, incentives for content developers, and investment in tools for content development, curation and management.

# B. The policy landscape

The technology component of SDG 17 includes targets that relate to global mechanisms, namely, the Technology Facilitation Mechanism and the United Nations Technology Bank for the Least Development Countries. Based on the SDG 17 indicators, however, technology measurement is limited to Internet users and broadband. A meaningful analysis of technology and its role as a means of implementation requires going beyond these indicators to consider digital transformation and emerging technologies.

◆ **Each Arab country has developed at least one strategy relevant to ICT, either general for the ICT sector or to address a focused theme.** Some overarching strategies were adopted before 2015 but not all have been updated,[40] reflecting a global pattern where umbrella ICT plans or strategies are expiring and not being renewed.[41] Many countries are opting for specialized plans responding to national priorities or keeping up with specific technological advancements.

- 21 Arab countries have overarching digital strategies, but all 22 countries have strategies relevant to the ICT sector, such as the delivery of electronic services.
- Some countries have specific strategies for electronic services such as e-health, e-education and e-payment as well as action plans for broadband, cybersecurity, smart mobility or AI.
- **Algeria, Jordan, Mauritania, Oman, Qatar,** the **Syrian Arab Republic** and the **United Arab Emirates** have dedicated e-commerce strategies.

**Cyber legislation** varies significantly among countries, influenced by complex political, cultural and legal factors. Two important components are cybercrime laws and data protection and privacy laws. Cybercrime laws have been enacted in 17 countries[a] but are still in the form of a bill or act in 3 countries: **Iraq,** the **Sudan** and **Yemen.** These laws address cyber threats such as hacking, fraud, identity theft and online harassment. Data protection and privacy laws have been enacted in 14 countries[b] but are still in the form of a bill or cabinet decision in 2 countries: **Iraq** and **Palestine.** These laws aim at safeguarding personal information and privacy, especially with the rapid growth of data-driven public operations and services.

**Source:** Compiled by authors based on the ESCWA ENACT project.

[a] Algeria, Bahrain, Djibouti, Egypt, Jordan, Kuwait, Lebanon, Libya, Mauritanian, Morocco, Oman, the State of Palestine, Qatar, Saudi Arabia, the Syrian Arab Republic, Tunisia and the United Arab Emirates.

[b] Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, the United Arab Emirates and Yemen.

◆ **Most countries are moving forward in building basic and specialized ICT skills. Many training programmes are implemented through partnerships with the private sector.** Skills development is still very much needed across the region. Where data are available, they reflect considerable variation. For example, the share of people with basic skills such as using copy/paste tools or sending emails reaches over 60 per cent in the Gulf Cooperation Council countries and as much as 100 per cent in some. The share drops significantly, to less than 15 per cent, for countries in conflict.[42] Shares are lower across countries for more advanced ICT skills such as setting up privacy or security measures.

In **Egypt,** collaboration between the Ministry of Communications and Information and the Decent Life Initiative resulted in improved connectivity in rural areas via the installation of fiber optic cables. The collaboration included capacity-building to improve digital literacy and awareness of available digital services as well as to equip citizens with skills such as digital marketing. More than 43,000 trainees in rural areas benefited from digital literacy sessions in 2022. Government employees in rural areas were also targeted for digital training to support implementation of the initiative.

**Source:** Egypt Ministry of Communications and Information Technology, 2022.

- Skills needs and objectives for skills-building are an integral part of national technology plans. They are particularly evident in new plans for AI. **Bahrain, Egypt, Jordan, Oman, Qatar, Saudi Arabia** and the **United Arab Emirates** have included objectives and/or key performance indicators for capacity-building and education in their national AI strategies.
- The 2023 AI strategy of **Jordan** aims to train 15,000 individuals. It complements the One Million Jordanian Programmers online learning initiative.
- The National Skilling Program of **Qatar** plans to train 50,000 people on digital skills by 2025.[43]

◆ **Countries are investing in e-government to improve public administration and facilitate digital transformation in different sectors.** The shift towards e-government has pronounced implications for health (SDG 3), education (SDG 4) and social

protection (SDG 1), and became more necessary during the COVID-19 pandemic when in-person access was limited or non-existent. In 2022, four Arab countries ranked in the "very high" category of the E-Government Development Index.[44] Eight were in the "high" category and eight in the "middle". Only one country was in the "low" category.

◆ At least 19 Arab countries[45] have issued e-government plans or programmes to leverage ICT for the delivery of government services. These policies are either stand-alone (an e-government strategy or plan) or are part of national development plans or digital transformation strategies. The level of implementation, proliferation and technological advancement of government digital services varies significantly across countries.

Integrating e-service delivery should be part of preparedness and crisis response plans, building primarily on the COVID-19 response.

E-government is also linked to open government and e-participation, which are strong levers for SDG 16 (see also the chapter on SDG 16).

◆ The **United Arab Emirates** leads the region on the E-Government Development Index and has declared its Government paperless. Its e-government platform offers 500 online services, many of which have been redesigned to cut processing time. For example, the time needed for family registration has been reduced from three days to a few minutes.[46]

◆ The e-government offering of the **State of Palestine** is growing and falls within the framework of its national development plan. It aims to improve effectiveness and efficiency in the public sector and facilitate access to services, particularly in rural areas and among citizens living abroad. The initiative builds on ongoing technical and security infrastructure development and has focused on data-sharing, data transfer and interoperability across public institutions.

### The Technology Facilitation Mechanism

The United Nations established the Technology Facilitation Mechanism in response to the Addis Ababa Action Agenda and the 2030 Agenda, which refers to the mechanism in SDG target 17.6. The mechanism comprises four components, each of which includes several activities. While some Arab countries are involved in the mechanism at the expert or institutional level, or are beneficiaries, engagement overall is quite limited, suggesting opportunities for increased participation, as follows.

• A **10-member group** appointed by the United Nations Secretary-General is mandated to engage in preparations for the annual Science, Technology and Innovation (STI) Forum and support the development and operationalization of an online platform, 2030 Connect. Only the first group for 2016−2017 included an expert from the Arab region. The other two groups, for 2018−2021 and 2021−2023, did not include any members from the region.

• **2030 Connect:** This platform collects information on initiatives and publications from countries worldwide. Contributions from the Arab region are mostly to the World Summit on the Information Society platform on digital initiatives. A stocktaking exercise in the Arab region showed that numerous digitization efforts rely on partnerships among government institutions and sectors. For example, the ThinkTech initiative in **Saudi Arabia** was launched by the Ministry of Communication and Information Technology to raise awareness and build knowledge on state-of-the-art technologies. Another example is the PortNet National Single Window of Foreign Trade of **Morocco.** Based on a national partnership between the Government and private sector, it plans to digitize international trade services. A third example is the E-Recruitment System of the General Personnel Council of the **State of Palestine,** which was selected as a 2022 prize winner by the World Summit on the Information Society stocktaking exercise.

• **STI Forum:** The multistakeholder STI Forum is the main global event gathering different stakeholders to discuss priority issues, strengthen the science-policy interface and prepare for the High-level Political Forum. On the sidelines of the STI Forum, the Global Solutions Summit is organized to propose and debate research-based policy recommendations for the Group of 20, Group of 7 and beyond.

• **Inter-agency Task Team on Science, Technology and Innovation for the SDGs:** This United Nations inter-agency team promotes coherence and coordination across the United Nations. Of its 10 workstreams, Arab countries are benefiting from capacity- building on science, technology and innovation policies for the SDGs[a] and related roadmaps. Oman and Tunisia have expressed interest in the latter.[b]

[a] Interagency Task Team, 2021.
[b] World Bank and others, 2021.

◆ **Across the region, countries are promoting technological innovations to improve sustainability and transform economic sectors. One notable example is the use of technology in agriculture** to tackle the challenges of water scarcity, limited resources and a growing population through precision agriculture, smart irrigation systems and support for agritech start-ups. Abu Dhabi's Agriculture Authority in the **United Arab Emirates,** for example, is leveraging 50 AI solutions and tracking 250 key indicators to manage agriculture and maximize data impacts on food systems. Partnerships among international, regional and national institutions are steering technological solutions adapted to the region, such as the Solar-Powered Drip Irrigation Optimal Performance system.[47]

Green technology applications have the potential to improve the socioeconomic situation of Arab rural communities. Five agricultural technologies have been identified as adapted to the context of the region: rainwater harvesting, green fertilizers, solar dryers, small-scale food processing and food bioconservation. By enhancing resource efficiency and preserving natural resources, these technologies simultaneously improve the well-being of local populations.

For more information, see the ESCWA project on enhancing the resilience and sustainability of agriculture.

# C. Policy trends by subregion

## 1. Gulf Cooperation Council countries

The Gulf Cooperation Council countries have invested in advanced ICT infrastructure and continue to invest in upgrades. Regionally, they have the highest value of fixed broadband per 100 inhabitants at almost 100 per cent. **Qatar** and the **United Arab Emirates** have the fastest mobile broadband speeds globally. Citizen-centric approaches have led to more refined e-government services. As such, Gulf Cooperation Council countries rank higher on the e-government development index than other countries in the region. The **United Arab Emirates** ranks thirteenth globally.

◆ **Gulf Cooperation Council countries have focused on building the "digital economy".** The fourth industrial revolution has the potential to add between $138 billion and $255 billion to GDP in the subregion, depending on the level of digital transformation achieved.[48] Further, the COVID-19 pandemic highlighted the importance of the digital economy for improved economic resilience.[49] **Bahrain, Oman** and the **United Arab Emirates** have developed targeted strategies for building a digital economy. These strategies focus on economic sectors undergoing digital transformation and seek to advance e-services such as digital financial services (e-payments).

◆ **A fast pace in adopting advanced and emerging technologies is evident in the Gulf Cooperation Council countries.** The **United Arab Emirates** has

produced a package of polices that integrate the latest technologies in all economic sectors. It puts a special focus on digitally transforming government services and integrating AI, which is expected to contribute $96 billion to GDP by 2030, and blockchain, which is expected to save around $3 billion.[50] **Saudi Arabia** has shown strong institutional and policy support for building AI-powered government services in data and analytics, foresight and decision-making. Millions of users benefit from these services with savings estimated in the billions of dollars. Advanced ICT infrastructure helps push these policies forward, with the Gulf Cooperation Council countries having achieved an infrastructure level similar to, and sometimes even exceeding, that of highly developed countries. **Qatar** and the **United Arab Emirates** have the world's fastest mobile broadband speeds at 175 and 178 megabits per second, respectively.

Internet use in the Arab region is more focused on social media than impactful economic activity. The World Bank refers to a "digital paradox" in the region,[a] noting: "For its level of development, measured by GDP per capita, the region has an excess in the use of social media and a deficit in the use of digital payments". Elevated levels of Internet use do not imply a transformation towards the digital economy, especially when there is a lack of trust in the government and the financial system.

**Source:** Cusolito and others, 2021.

[a] The region referred to by the World Bank is the Middle East and North Africa.

◆ **To keep up with the fast pace of technological development, the Gulf Cooperation Council countries are providing venues for regulatory experimentation with new digital products.** A regulatory sandbox, for example, allows experimentation with technology and business models, and fosters collaborations among stakeholders. The Gulf Cooperation Council countries are implementing the sandbox concept to experiment with technologies and launch start-ups with innovative solutions, thus supporting the entrepreneurship ecosystem to keep up with technological development. The Central Bank of **Bahrain** opened its regulatory sandbox in 2017; it currently hosts 19 companies developing fintech solutions. **Saudi Arabia** has launched several sandboxes for fintech, emerging technologies and embedding data and privacy into products. Another example involves intergovernmental regulatory collaboration, such as the Agile Nations network that the **United Arab Emirates** joined with other non-Arab countries. The network helps innovators navigate the regulatory landscape, test new technological ideas in collaboration with regulators and scale up innovations while protecting citizens.[51]

## 2. Arab middle-income countries

The Arab middle-income countries had 85 Internet users per 100 inhabitants in 2022, higher than the regional average. These countries have a high e-government index ranging from 0.53 in **Lebanon** to 0.65 in **Tunisia.**

Middle-income countries have attempted to address a persistent digital divide, whether related to location, gender or age, with the ultimate objective being to ensure everyone has adequate Internet connectivity that is safe, reliable and affordable. In 2022, **Egypt** provided ICT skills training to 125,000 individuals and built over 1,000 mobile towers in the Decent Life Villages to improve connectivity. Digital inclusion is a top priority in the 2025 digital strategy of **Tunisia.** In 2023, Tunisia launched an infrastructure project to connect over 3,300 schools to broadband.[52] The digital strategy of **Morocco** has a target of reducing the digital divide by 50 per cent, including the gap between rural and urban areas. **Algeria** is expanding coverage and improving bandwidth capacity in all geographic areas as well as in academic and health institutions.[53]

◆ **To enhance digital entrepreneurship and innovation, middle-income countries have been building an entrepreneurship ecosystem over the years through support for incubators, accelerators and educational programmes.** Regulatory frameworks, investment funds, national initiatives and awards are being set up to encourage innovative start-ups in technology (**Algeria,**

**Egypt, Jordan, Lebanon, Morocco** and **Tunisia**). In **Egypt,** technology start-ups have received $605 million in venture capital deals.[54] Jordan established a Ministry for Digital Economy and Entrepreneurship in 2019. A recent study found that most Jordanian start-ups are in technology, such as e-commerce, edtech, fintech, health-tech and others.[55]

E-commerce is increasingly recognized for its vast opportunities in accessing markets (SDG 9), increasing employment and contributing to GDP (SDG 8). It can also be leveraged for the empowerment of women entrepreneurs and traders (SDG 5).

E-commerce growth, however, is not without challenges. These mainly relate to:

- Connectivity, depending on ICT infrastructure.
- Digital payments, part of a wider financial inclusion challenge.
- Consumer behaviour, which is shaped by a lack of trust and the need for better cybersecurity.

◆ **Several middle-income countries are working to build an enabling environment for e-commerce through policies, legislation and targeted programmes. Egypt** and **Jordan** have developed dedicated e-commerce strategies that aim to build an enabling ecosystem, including necessary legislation and partnerships. In these strategies, e-commerce is expected to incentivize the private sector and become a lever for economic growth. **Algeria, Jordan** and **Tunisia** enacted e-commerce laws in 2018, 2015 and 2000, respectively.[56] **Morocco** has taken a more practical approach, including e-commerce as a lever for economic development in national development strategies and launching multiple support programmes. Examples of the latter include a certificate of excellence and monetary support to start-ups offering e-commerce services and a national programme to accelerate digital start-ups in commerce.[57] The Government also supports e-commerce websites for artisanal manufacturers to help increase their access to local and international markets.[58]


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# 3. Arab least developed countries and countries in conflict

In Arab least developed countries, the number of fixed broadband subscriptions, at 0.6 per 100 inhabitants, is a fraction of the regional average and less than all other regions worldwide. This is mainly because mobile broadband is seen as a less expensive and more accessible alternative, although not the most ideal. Looking at mobile broadband in 2022, subscriptions per 100 inhabitants in the least developed countries (27.1) and countries in conflict (33.7) were both less than the regional average (69.5). The value was alarmingly low in **Somalia** (2.5 in 2022) and **Yemen** (4.9 in 2021). There is a high gender gap in Internet use, reaching 12 percentage points in **Iraq.**

◆ **ICT infrastructure projects in the least developed countries are focused on Internet access, including network coverage and affordability.** These countries are mostly rural with vast geographic areas posing a challenge to connectivity in terms of implementation and costs. ICT or digital strategies in the **Comoros, Djibouti, Mauritania** and **Somalia** prioritize infrastructure development, network coverage and development of digital services, among other issues. Globally, broadband remains unaffordable in most of the least developed countries, which also applies to those in the Arab region. The price of fixed and mobile broadband is higher than the affordability threshold (figure 17.1).[59] These countries,[60] in national policies or plans or donor-funded projects, have acknowledged the need to reduce the cost of access.

> The economic impact of fixed and mobile broadband is greater in low-income countries than in higher-income countries, demonstrating that policies for improving broadband access, connectivity and uptake in the least developed countries could yield higher economic returns than in other countries.
>
> **Source:** UNOHRLLS and ITU, 2019.

**Figure 17.1**
**Fixed and mobile broadband basket, 2022 (Percentage of monthly gross national income per capita)**
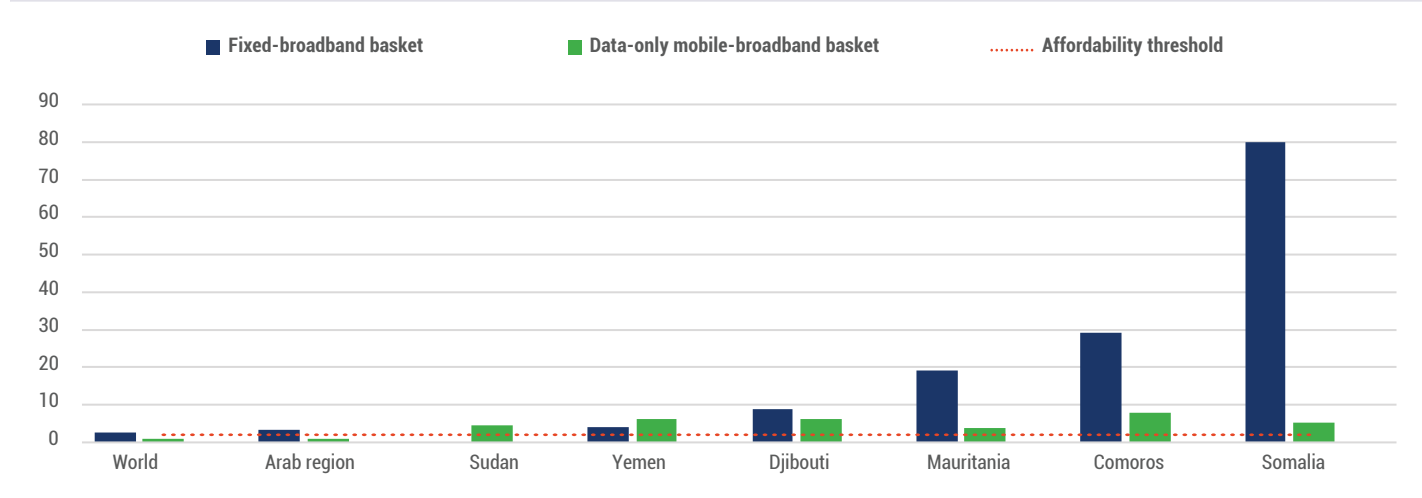


**Source:** ESCWA based on data from ITU, 2023c.

**Even when an ICT policy exists, implementation remains a serious challenge for most countries in conflict, which have destroyed or seriously damaged telecommunications infrastructure.** Continued conflict and a lack of funding are major impediments to moving forward. Costs for recovery and reconstruction in **Yemen** were estimated at $20 billion to $25 billion over five years and in **Iraq** at $88.2 billion. The strategy for the digital transformation of government services in the **Syrian Arab Republic** considers the infrastructure development phase a foundational one and requires vast investments.[61] In **Palestine,** the ICT sector is among government development priorities and constituted around 3.2 per cent of GDP in 2021.[62] Employment in the ICT industry almost doubled between 2008 and 2018, while ICT service exports increased from less than $2 million in 2000 to more than $85 million in 2017. Development of the digital economy is among the priorities of the National Development Plan (2021–2023), the recent ICT Sector Strategy 2021–2023 and many sectoral strategies.

Since 7 October 2023, the Gaza Strip has faced severe damage to its telecommunications infrastructure and recurrent Internet shutdowns, which have hindered access to vital information and delivery of humanitarian efforts. Although mobile network operators are able to deliver voice services, the network has become congested due to increased numbers of subscribers in certain areas. This negatively impacts the ability of people and communities to maintain contact with each other as well as the delivery of crucial services and the transmission of information within Gaza and to the outside world.

The Emergency Telecommunications Cluster, a global network of organizations, was activated for the **State of Palestine** on 31 October 2023. It has aided humanitarian agencies with assessments, technical advice, repairs and guidance on ICT equipment in Gaza. The cluster has managed to obtain authorization for importing telecom equipment for humanitarian communications, and continues to engage with Israeli authorities to import other equipment into Gaza, although the process is lengthy and challenging. The cluster is also looking into alternative means to disseminate information such as radio stations.

**Source:** Emergency Telecommunications Cluster, 2024. See also the ETC Palestine Dashboard.

◆ **Direct engagement with the United Nations Technology Bank is limited among the least developed countries.** The bank was established as stipulated in SDG target 17.8 of the 2030 Agenda and acts as a mechanism to close the science, technology and innovation gap in the least developed countries with a view to meeting the SDGs. It runs initiatives and services including technology needs assessments, technology transfer programmes and capacity-building, comprising the establishment of academies of science, digital training for research, biotechnology research exchanges and technology makers labs, among others. Out of 15 completed and ongoing technology needs assessments, only one is for an Arab country **(Djibouti).** These needs assessments are demand-driven, thus posing a question as to why Arab least developed countries are not requesting them. Some countries have engaged in educational programmes such as the International Design Education Programme, including **Somalia,** the **Sudan** and **Yemen.**[63]


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# D. The financing landscape

**Based on available data, total investments in telecommunications services in Arab States reached $10.34 billion in 2021,** less than 5 per cent of global investments. These investments were made by providers of telecommunication networks and/or services either to acquire new assets or upgrade existing ones, and included fixed and mobile Internet services. **Saudi Arabia, Egypt** and the **United Arab Emirates** lead in terms of the value of investments. Over the previous five years, the change in investment varied across countries; the largest increase was in **Egypt,** with more than 130 per cent increase between 2017 and 2021. The largest drop was in the **Comoros.** For most Arab States, the percentage of investment out of revenues was less than 25 per cent (figure 17.2).

**Figure 17.2**
Telecommunications investments and percentage of revenue, 2021 or latest (Millions of dollars)

■ Telecom investments, 2021          ● Telecom investments as a percentage of revenue, 2021
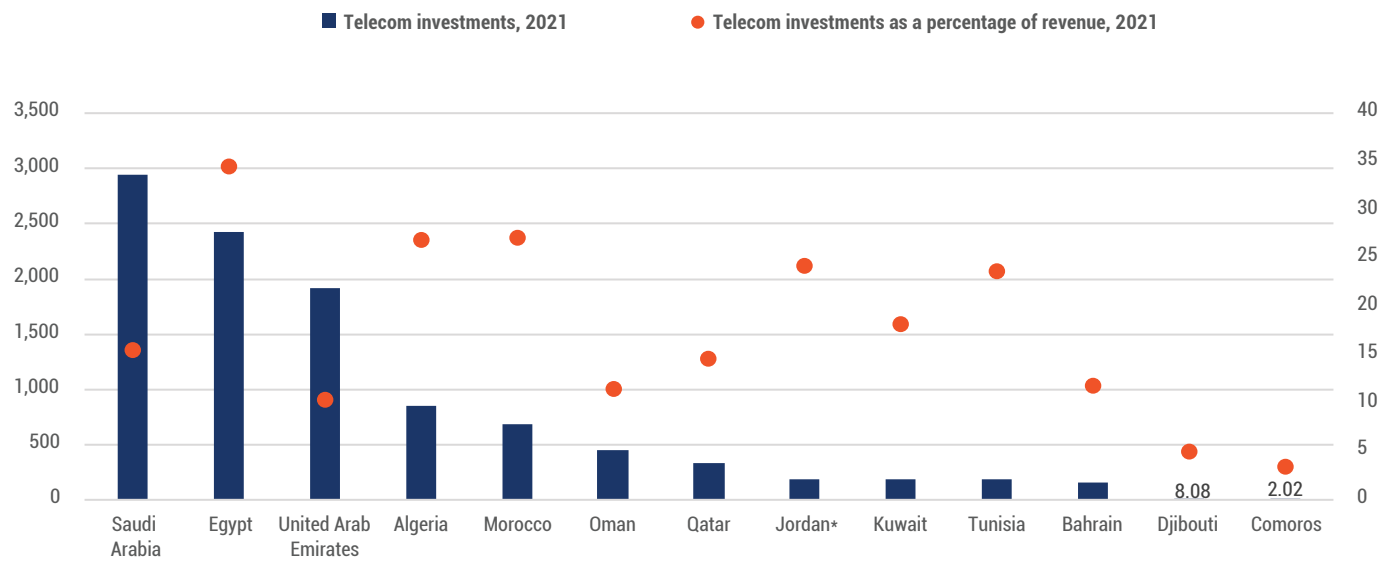
**Most countries have established funds to foster investment in small and medium ICT projects, particularly those by young entrepreneurs.** They also encourage banks to provide loans to start-ups, particularly in ICT, to facilitate the expansion of the sector. **Jordan, Oman** and the **State of Palestine** incentivize foreign and national investment in ICT by reducing taxes and simplifying procedures. Special economic zones with advantageous facilities and services offer another route to attract investment.[64]

**Venture capital is a growing source of funding for start-up companies. Start-ups in 15 Arab countries in 2022 crossed the $3 billion investment mark.**[65] **Egypt, Saudi Arabia** and the **United Arab Emirates** have dominated venture capital, with most deals involving seed or pre-seed investments although the largest amounts have gone into growth investments. Start-ups operate in around 30 domains, the majority of which are technology-based and led by fintech, which attracted over $1.1 billion in investments in 2022. The diversity of domains in figure 17.3 reveals the impact technology has on many SDGs, such as benefits from food-tech for SDG 2 and health-tech for SDG 3.[66]

There is a notable gender gap in recipients of venture capital. The majority of investments in 2022 (94 per cent) went to start-ups founded by men. The rest went to start-ups founded by women only or co-founded by women and men. Start-ups led by women mostly operated in the health-tech, ed-tech and e-commerce sectors.[67]

**Globally, growing interest in investing in AI companies in recent years has mostly been in developed countries.** In terms of government spending on AI, China ranks first (around $22 billion), followed by **Saudi Arabia,** Germany, Japan (all below $4 billion) and the United States (around $2 billion).[68] In the Arab region, venture capital investments in AI were highest in 2022 in the **United Arab Emirates** followed by **Saudi Arabia** and **Egypt** (figure 17.4).

**Figure 17.3**
Investments in start-ups in the Arab region



Legend:
- Fintech
- Cleantech
- Logistics
- Super app
- Foodtech
- Agritech
- E-commerce
- SaaS
- E-sports/Gaming
- Healthtech
- Proptech
- Mobility
- Web3
- Media
- HR
- AI/Deep tech
- Edtech
- Insurtech
- Other
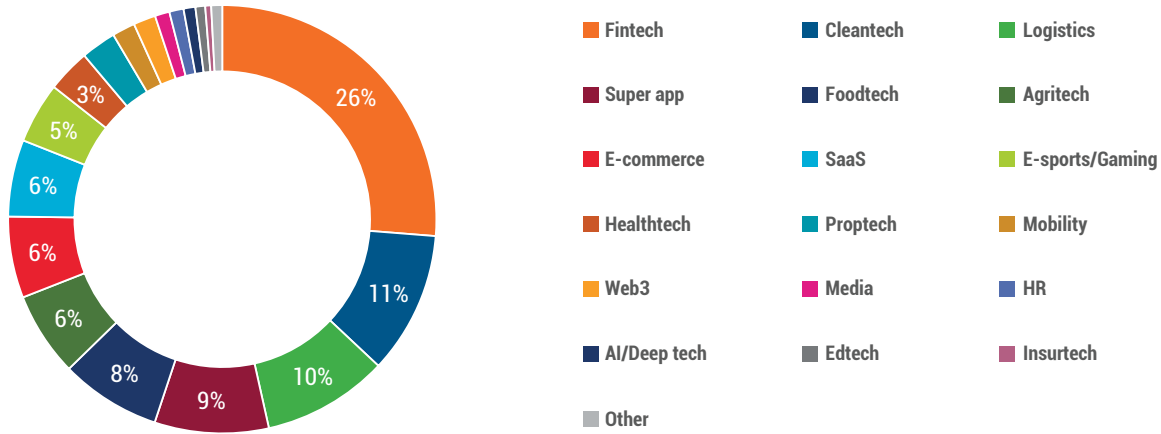
**Source:** ESCWA based on data from Wamda, accessed in April 2023.

**Figure 17.4**
Venture capital investment in AI, 2013–2023 (Millions of dollars)



Legend (top chart): Egypt, Saudi Arabia, United Arab Emirates



Legend (bottom chart): Bahrain, Lebanon, Morocco, Yemen, Iraq
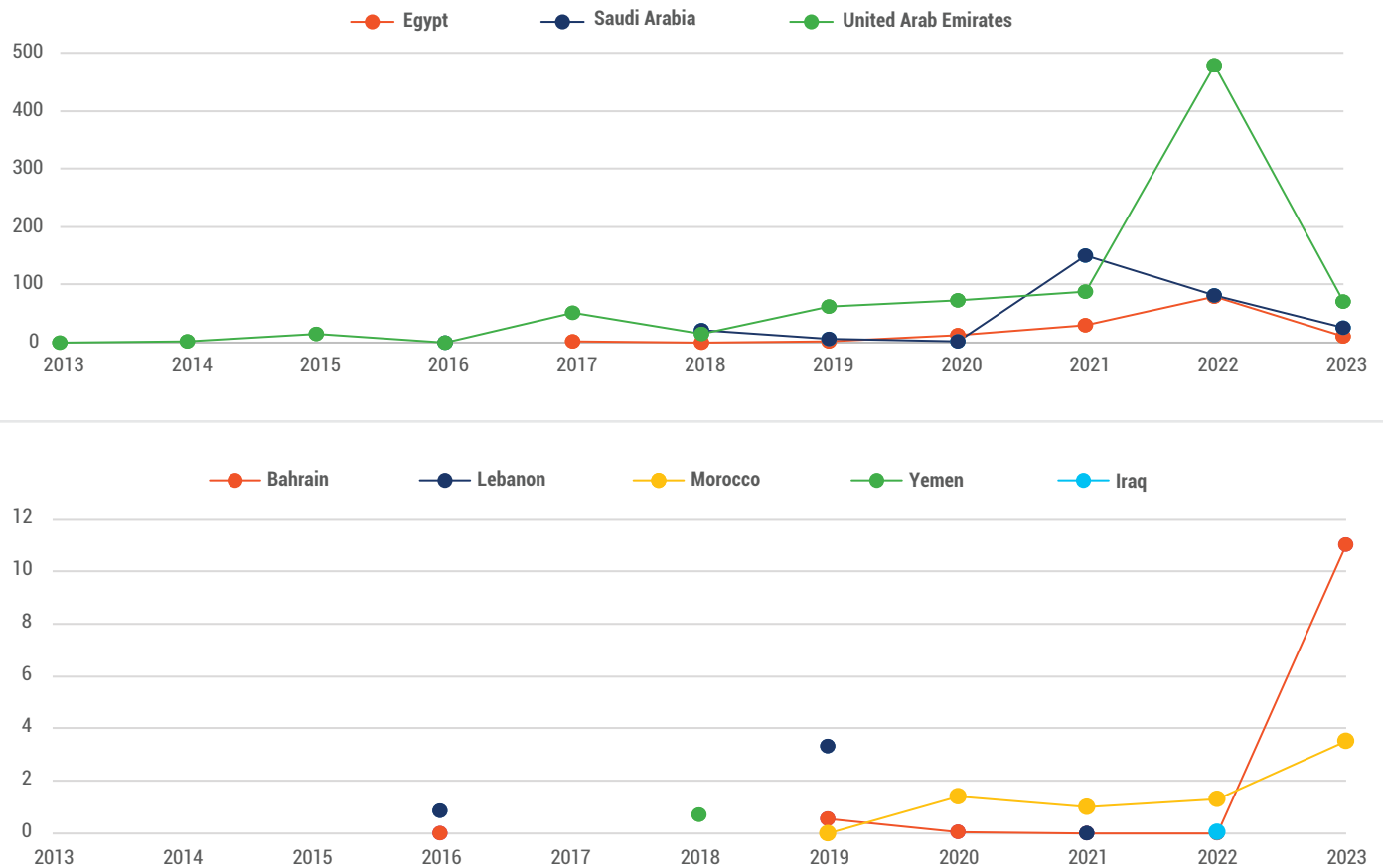
**Source:** OECD, 2023. Visualizations powered by JSI using data from Preqin, accessed on 20 April 2023.

**Note:** This figure displays venture capital investments in AI in millions of dollars by country from 2013 onwards. Data downloads provide a snapshot in time. Caution is advised when comparing different versions of the data, as the AI-related concepts identified by the machine learning algorithm may evolve in time. For more information, see the methodological notes.

# E. Regional dimensions

The **Arab Telecommunications and Information Council of Ministers** is a high-level body of the League of Arab States that has worked since 2007 to strengthen regional integration on priority areas in line with technology developments. The council addresses topics such as Internet governance, network connectivity, cybersecurity and digital content. In 2023, the council adopted the Arab Digital Agenda 2023–2033.[69]

- The **alliance between leading telecom operators in the Gulf Cooperation Council countries** has been pushing for the interoperability of existing telecom networks. Ongoing collaboration backs deployment of a system that will allow network equipment to operate seamlessly, thus facilitating the adoption of 5G, the Internet of things and other technologies.[70] Technical specifications have been put in place, identifying challenges and opportunities, including those related to cybersecurity and performance.[71] The Gulf Cooperation Council alliance also collaborates on sustainability issues and has signed a memorandum of understanding strengthening commitment to sustainability, with a focus on climate action and reducing the carbon footprint.[72]

- The **Arab Internet Governance Forum** was established in 2012[73] to provide a multistakeholder platform for policy dialogue and reflect the region's voice at the global level, mainly at the Global Internet Governance Forum. Deliberations have addressed Internet policy topics such as critical Internet resources, access, inclusiveness, openness and human and cultural aspects.[74]

- To cover the technical side of the Internet, the **Middle East Network Operators Group** was formed as a platform for knowledge exchange, learning and collaboration among experts, industry stakeholders and policymakers. The group organizes annual meetings attended by mobile operators, Internet service providers and regulators that take up topics such as network threats and cybersecurity; Internet protocols, including the move to IPv6; domain name systems; and regional connectivity and peering. The group has organized technical capacity-building workshops on Internet exchange points, targeting service providers and domain name infrastructure operators.[75]



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## E-accessibility for leaving no one behind

While there is increased awareness in the Arab region of the importance of building inclusive physical and digital environments for people with disabilities, challenges and gaps remain. "Achieving accessibility requires a normative shift in how societies perceive disabilities and construct the physical, social and digital environment".[a] Qatar is a top performer in terms of e-accessibility, which is part of a national initiative that brings together Government and private sector actors. The country has an e-accessibility policy and several projects that help people with disabilities. The Mada Assistive Technology Centre, for example, is a non-governmental organization that promotes digital inclusion and access in Arabic. In addition to research and advice, Mada sponsors assistive technology development at its lab. It has a regional reach as shown in its collaboration with Oman.[b]

See more on the ESCWA Arab Digital Inclusion Platform.

[a]  ESCWA, 2021.
[b]  ESCWA, 2022; Mada – Assistive Technology Center Qatar, 2023.

■ On the technical side, the **Arab Regional Cybersecurity Centre** was established by ITU and hosted at the National Computer Emergency Readiness Team in **Oman,** which manages its operations. The centre drives the adoption of ITU's Global Cybersecurity Agenda across the region and strengthens regional integration. In addition to offering capacity-building on cybersecurity, the centre facilitates cooperation among countries in the region and beyond on information security and mechanisms to counter attacks and face cyberthreats.[76]



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## AI for the SDGs

Numerous practical AI applications are being deployed across the region to advance the SDGs. Some examples include using AI to:

• monitor and analyze food scarcity, and enable food aid delivery in hard-to-reach areas;

• assist in medical diagnosis and drug discovery;

• break down language barriers in communication, enhance the ability of computers to understand different dialects, and allow for fast, accurate and AI-enabled translation and improved understanding of radio, television and online content;

• prevent, detect and prosecute online child sexual abuse and exploitation;

• boost innovation in the field of green technology and foster youth employment.

**Sources:** ITU, 2022 and the AI for Good platform.
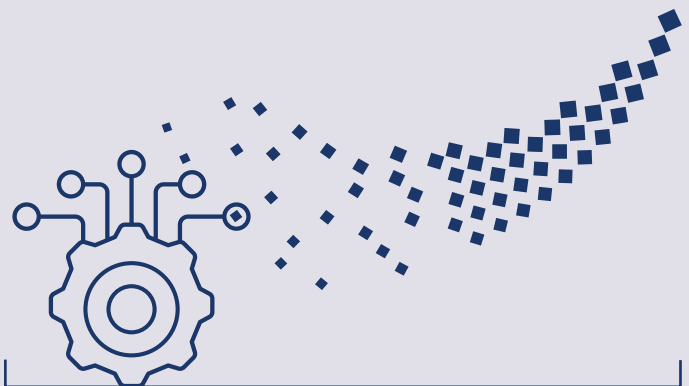
# Data, monitoring and accountability

## A. Introduction

Despite notable national efforts supported by regional and international organizations in recent years, huge challenges remain in monitoring the SDGs in the Arab region. Most countries lack a cohesive, integrated and comprehensive statistical system that leaves no one behind. The lack of comparable and disaggregated data based on income, geographical location, disability, age, gender and other markers impedes the reduction of inequality. Insufficient data on vulnerable or marginalized groups, including refugees, migrants and displaced persons, renders disparities invisible and effectively undercuts the human rights of these populations. Key challenges include the quality and frequency of statistical information produced nationally, international comparability, and data accessibility and transparency. Limited data availability, untimely dissemination of data and a lack of data disaggregation are all bottlenecks to evidence-based decision-making. They emanate mainly from issues related to statistical data governance and capacity.[77]

The COVID-19 pandemic and related disruptions transformed the way national statistical offices[78] and public agencies undertake statistical surveys and censuses. Governments invested in institutional and technological innovations to maintain data flows, accelerating the shift from conventional to innovative approaches in data collection, including through the use of advanced technologies, geospatial data[79] and big data.[80]

This section on data, monitoring and accountability focuses on SDG reporting and data dissemination in the region, based on the global framework of SDG indicators adopted to monitor progress in achieving the goals.

## What the data say

*Data included in this section are from the ESCWA Arab SDG Monitor, unless otherwise indicated (accessed in December 2023).*

In 2023, the publication of data on SDG **gender-related indicators** by Arab countries ranged from 32 per cent of the total in Libya to 79 per cent in Tunisia. The publication of **indicators disaggregated by sex** ranged from 19 to 52 per cent.

In 2023, only eight countries (36 per cent) had updated and approved **national strategies for the development of statistics,** and disseminated them online.

In 2022, 59 per cent of countries in the region had **legislation on national statistics** in compliance with the Fundamental Principles of Official Statistics,[81] against 76 per cent globally.

In 2021, 63.6 per cent of countries had **national statistics plans** under implementation, compared to 77.3 per cent globally. Regional variations were evident since this percentage was at 83.3 per cent for Gulf Cooperation Council and middle-income countries, 50 per cent for least developed countries and 28 per cent for countries in conflict.

In 2022, 40.9 per cent of countries had conducted at least one **population and housing census** in the last 10 years compared to 80.4 per cent globally.[82]

For an up-to-date view of SDG 17 data at the national and regional levels and an analysis of data availability, please refer to the **ESCWA Arab SDG Monitor**.

**Figure 17.5**
SDG data availability in the Arab region, December 2023 (Percentage)



■ Sufficient   ■ Insufficient   ■ No Data
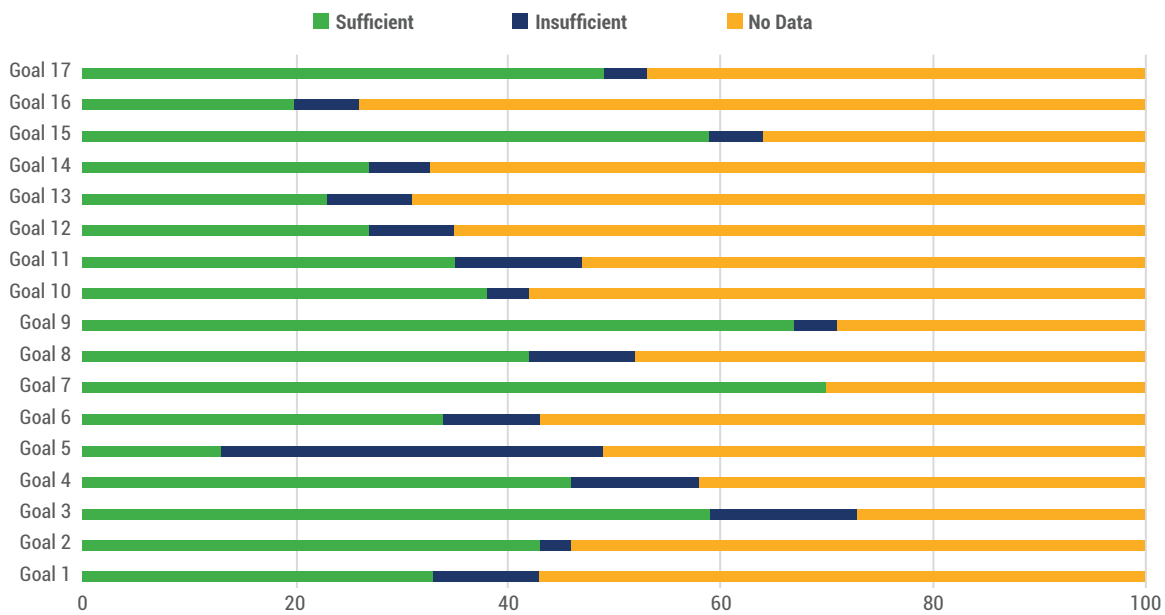
**Source:** ESCWA Arab SDG Monitor.

## On the road to 2030 – suggested policy approaches to accelerate progress on data, monitoring and accountability

■ Accelerate and prioritize the production of high-quality, timely data disaggregated by income, sex, age, ethnicity, migratory status, geographic location, disability and other characteristics relevant to national contexts.

■ Improve data accessibility to regularly update SDG indicators and inform decision-making, and engage different stakeholders (including parliamentarians, researchers, civil society and private sector representatives) in monitoring and evaluating policies and interventions.

■ Adopt new sources of administrative data and modernize records for statistical purposes, integrating statistical and geospatial data, and forging partnerships with data producer and user communities.

■ Update and modernize national legislation on statistics, in line with the Fundamental Principles of Official Statistics,[83] and institutionalize the coordination role of national statistical offices, including on monitoring SDG implementation in collaboration with national entities producing data and other data providers.

■ Establish and fully operationalize national reporting platforms and systematic coordination channels among data providers to enhance data flows and facilitate transparent information-sharing, and offer analytic tools to enable policymakers to measure progress and adapt development strategies and plans.

- Conduct national population and housing censuses in line with the <u>United Nations Principles and Recommendations for Population and Housing Censuses</u>, including the adoption of register-based censuses, where feasible, and the use of geospatial and other technologies for generating population data in hard-to-reach contexts affected by humanitarian crises.

- Increase coordination between national statistical offices and relevant international and regional institutions to further develop national and regional statistical systems, including through technical support to national statistical offices.

- Increase partnerships with academia and the private sector to enhance innovation and the use of new technologies and methodologies in data collection, analysis, dissemination and use.

# B. The policy landscape

◆ **Arab Governments increasingly recognize the importance of modernizing national laws on official statistics and have made commitments in that direction.** Participants at a regional workshop organized by **Qatar** in November 2019 adopted the Doha Declaration on Modernization of Official Statistics.[84] In addition, government representatives participated in the preparation of the "Guide on the Generic Law of Official Statistics in the Arab Countries".[85] Countries are increasingly using voluntary national reviews to broaden the scope of data collection and enhance data quality.

- • **Ten Arab countries do not have updated laws that adhere to the fundamental principles of official statistics.** They lack steering councils for statistics users, technical committees of active data producers and national strategies for statistics.

- • Most SDG indicators are directly reported to United Nations custodian entities by nationally nominated trained data providers, but data are not always available at national statistical offices.

Only 11 countries have advisory boards or councils on statistics.[86] Some have technical committees for statistics;[87] others have adopted a mixed set-up of data producers with an unclear delineation of roles.

◆ In the **Comoros,** legislation on statistics defined the national statistical system, which includes the National Statistics Council, the National Institute of Statistics and Economic and Demographic Studies and services in charge of developing statistical data in ministerial departments and public and semi-public agencies. The Government launched the National Strategy for the Development of Statistics 2023–2028.

◆ **Somalia** adopted a new Statistics Law in 2020, establishing the Somalia National Bureau of Statistics as an autonomous institution mandated to collect, compile, coordinate, analyse, evaluate and disseminate national statistical information.

◆ **Tunisia** is updating its law on statistics to comply with the fundamental principles of statistics and to have more quality, up-to-date and accurate data, disaggregated by level of income, sex, age, ethnicity, migration status, disability and geographic location.


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◆ **Most countries have launched initiatives and measures to improve data collection, analysis and dissemination, recognizing the importance of producing quality and timely data to monitor progress on the SDGs and inform evidence-based decision-making.** Efforts to enhance the capacity of national statistical systems to produce data and demographic, economic, social and environmental statistics have included investing in infrastructure, technology and capacity-building. **Networks of SDG data providers have been established,** strengthening the coordination role of national statistical offices at the centre of multiple and complex data systems. **Qatar** has established a national SDG network of 123 data providers to report progress on SDG indicators in the national statistical system. Other countries, including **Bahrain, Iraq, Oman, Saudi Arabia, Somalia,** the **Sudan,** the **United Arab Emirates** and **Yemen,** are establishing national networks of SDG data providers.

**As of January 2020, nine countries (41 per cent) had developed publicly available national reporting platforms**[88] **for the SDGs: Bahrain, Egypt, Jordan, Morocco, Oman, Qatar, Saudi Arabia,** the **State of Palestine** and the **United Arab Emirates.** Countries not equipped with such platforms have been supported by international and regional partners to build (but not necessarily host) platforms, bringing the total to 19[89] in the region as of February 2024. SDG indicator data availability may remain limited in these platforms, however.

> Most national SDG platforms suffer from underuse and infrequent updates. The dispersion of data in various platforms or websites instead of a single unified platform creates technical challenges and delays progress.

## 1. Gulf Cooperation Council countries

◆ In **Bahrain,** under the guidance of the National Committee for Information and Population established in 2019 and in collaboration with the Information and eGovernment Authority, the National Committee and the Ministry of Sustainable Development established a monitoring and reporting system. It includes an online SDG Portal and an Open Data Portal to facilitate the exchange of information and periodic updates between government entities and partners.[90]

◆ In **Kuwait,** the Central Bureau of Statistics has developed a website dedicated to the SDGs.[91]

◆ In **Oman,** an interministerial roadmap is designed to mobilize efforts to overcome obstacles to sharing data among national institutions. It seeks to boost data-sharing and open data[92] while respecting regulations related to privacy and confidentiality and operating in line with the Omani Personal Data Protection Law, which came into effect in February 2023.

◆ In **Qatar,** the Planning and Statistics Authority populates SDG indicators, publishes them on its website[93] and provides them to the United Nations Statistics Division.

◆ In **Saudi Arabia,** the National Statistical Development Strategy aims to establish a robust national statistical system by 2030. Investments have been made in providing easy-to-use statistics and information, incorporating new technologies, and enhancing communication and awareness. In addition, the Tenth National Development Plan prioritizes a high-quality statistical infrastructure and modernized information systems. The General Authority for Statistics is implementing a statistical data programme called Masdar to build a national database. It processes data from different sources to produce indicators and analyses needed by data users inside and outside the authority, supporting decision-making and the formulation of development plans.

◆ In the **United Arab Emirates,** the National Committee on the SDGs developed the SDG Data Hub,[94] which is integrated with the United Nations Open SDG Data Hub. It promotes partnerships for open data and geographical information systems, and serves as an educational and communications tool based on SDG data stories. This platform aims to engage the private sector and various stakeholders by providing knowledge related to the SDGs.

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## 2. Arab middle-income countries

- In **Algeria,** the Tahat Platform[95] is a "one-stop shop" for statistical information on sustainable development. It helps in strengthening collaboration with United Nations entities in charge of SDG indicators, and strengthens transparency and communication.

- **Egypt** established the National Committee for Monitoring the Implementation of the SDGs and launched its SDG Observatory Dashboard.[96] The Central Agency for Public Mobilization and Statistics has released national statistical reports for monitoring SDG indicators as well as SDG-localized reports at the governorate scale as part of implementing the National Strategy for the Development of Statistics 2017–2021.

- **Jordan** launched the National Strategy for the Development of Statistics 2018–2022, and the Department of Statistics established a Sustainable Development Unit. Jordan has developed measures to improve SDG monitoring, including through the use of non-traditional data sources, capacity-building for relevant entities and the publication of statistical bulletins for SDG indicators. The Jordan Development Portal[97] is a centralized data platform for SDG targets and indicators, intended to empower data owners and enable them to submit information to the system.

- In **Morocco,** the 2020 Voluntary National Review recommended the modernization of the legal framework for statistics, methodological reforms for surveys to populate more SDG indicators and acceleration of the digitalization process.

- In **Lebanon,** in the context of multiple indicator cluster surveys[98] (MICS), the Central Administration of Statistics has conducted surveys of living conditions and carried out other types of field research, bridging the national census gap. The Central Administration of Statistics is also participating in the statistical data and metadata exchange (SDMX) initiative,[99] which aims at standardizing and modernizing mechanisms and processes for the exchange of statistical data and metadata between international organizations and member States.

- In **Tunisia,** the National Statistics Institute has made progress in setting up a collaborative platform of stakeholders committed to achieving the SDGs by 2030.[100]



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## 3. Arab least developed countries and countries in conflict

- In **Iraq,** the Central Bureau of Statistics established an electronic SDG monitoring platform[101] with data on over 100 indicators.

- In **Palestine,** the Central Bureau of Statistics has updated its data management structure to fulfil the vision of integrating data producers and expanding the use of data from administrative records for statistical purposes. A general directorate of Records and Statistical Monitoring was created to collect, compile, publish and document statistics from the administrative records of various public and private institutions, and combine them with data from surveys and censuses carried out by the Central Bureau of Statistics.

- In **Somalia,** beyond primary surveys on key sectors, the National Bureau of Statistics has completed the Somali health and demographic survey 2018–2019 as well as a 2019 labour force survey and a 2022–2023 integrated household budget survey. Somalia also embarked on a population and housing census and MICS in 2024.

◆ In the **Sudan,** the National Strategy for Promoting Statistics 2021–2025 plans to undertake surveys and censuses, including the MICS, an agriculture and livestock census, a national household budget and poverty survey, and a labour market survey. The strategy seeks to improve the availability and quality of administrative data in education and health, in line with SDG indicators. The Central Bureau of Statistics has established a special unit for the SDGs.

◆ **Some Arab countries have launched policies and measures to upgrade conventional approaches to data collection by national statistical offices,** including through the use of innovative technologies and tools such as AI, remote sensing, satellite imagery and machine learning techniques. The use of such technologies has not yet resulted in an SDG data revolution, however. In several countries, mainly Gulf Cooperation Council countries, **research centres build on AI-based technologies and machine learning techniques to explore and mobilize the potential of non-traditional data sources** to support the effective use of data and overcome SDG data challenges, including by analysing large and complex data sets. AI is also used to model future scenarios and make predictions about how different factors might impact the SDGs.

Advanced technologies offer significant potential for enhancing the effectiveness of data collection and analysis but need to be accompanied by strong data protection laws. Non-consensual monitoring of social media activities and tracking mobile phone data pose threats to privacy and liberties. The unregulated use of data could feed into surveillance and censorship, potentially leading to abuses of power and violations of human rights. Beyond data protection laws, robust safeguards are crucial for transparency in data collection practices, including in terms of individual consent and independent oversight mechanisms. Ethical guidelines are essential to balance technological advancement with privacy protection and the preservation of individual rights.

**There is a growing recognition of the need for open data initiatives,** including through data policies aiming to increase transparency; foster innovation; enable citizens, researchers and businesses to utilize data for various purposes; and encourage Governments to release data to the public in accessible formats. Some Gulf Cooperation Council countries have developed open data portals. The National Open Data Portal[102] of **Saudi Arabia** allows people to access, download and use the data of ministries and government agencies. The recently established Saudi Data and AI Authority has developed the National Strategy for Data and AI.

**Some countries have launched policies and measures to adjust data collection methodologies in time of crisis.** National statistical offices introduced innovative data collection practices in response to the COVID-19 pandemic, adapting data collection tools and using administrative data.[103] In several countries, e.g., **Djibouti, Egypt, Iraq, Morocco, Palestine** and **Tunisia,**[104] national statistical offices launched electronic and telephone surveys on household living conditions during COVID-19 lockdowns to overcome series interruptions and disruptions in data availability.[105] Innovative approaches, including high-tech tools and geographic information systems, have proven efficient in bridging SDG data gaps when it was not possible to conduct conventional statistical surveys. **An increasing number of initiatives to support cooperation among various stakeholders involve non-state actors who can have a decisive role in bridging SDG data gaps.** New partnerships involve national institutions, the private sector and scientific organizations in selecting and mobilizing the most efficient technologies for data collection and processing.

National statistical offices that conducted phone surveys during the COVID-19 pandemic encountered difficulties such as a lack of representation, particularly for random digit dialling, and weak response rates.

Illustrating the potential of multistakeholder partnerships as an SDG accelerator, the **Giga Sudan** initiative mobilizes high-tech and innovative data solutions. It used satellite imagery for geolocalizing schools in remote areas, which improved access to digital learning and helped sustain learning continuity during the COVID-19 pandemic and a period of political and economic instability. Giga Sudan has demonstrated that high-tech innovations can be more time-efficient and cost-effective than conventional ways of collecting data. The United Nations International Children's Emergency Fund (UNICEF) implements the project in partnership with the Government and other stakeholders, including the private sector and telecom operators.

# C. Regional dimensions ◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇

**Regional collaborations and partnerships** are promoting the harmonization of data standards and methodologies among countries. In that context, United Nations regional organizations provide technical support and capacity-building to enhance data quality and availability at the national and regional levels. Support includes various tools[106] to improve institutional statistical environments, the coordination and management of data flows, the production of comparable data from different sources and data-sharing.

- The **United Arab Emirates** hosts the **Regional Hub for Big Data**[a] in support of the United Nations Global Platform, facilitating projects using big data and data science for official statistics and SDG indicators, and sharing knowledge on newly developed methods, algorithms and tools. It provides training on big data and data science for statisticians in the region.

- Household surveys, such as the flagship MICS,[b] remain an essential component of the data ecosystem, complementing population and housing censuses. The MICS supports Governments to collect data on up to 40 SDG indicators. Globally, over 350 of these surveys have been conducted since 1995, including over 40 in Arab countries. Several Arab countries regularly conduct the surveys once every four to five years **(Algeria, Iraq,** the **State of Palestine** and **Tunisia).** Others have more recently joined the programme **(Lebanon, Libya, Morocco** and **Yemen),** including high-income Gulf Cooperation Council countries **(Oman** and **Qatar).**

  MICS are nationally owned and government-led, with global and regional experts supporting countries with data processing and sampling. They provide a platform for enhancing cooperation on data between countries and regional and international organizations, including the League of Arab States and United Nations entities. The data of MICS are a key source for regional studies such as the recent Second Arab Multidimensional Poverty Report.[c]

  There are considerable opportunities for further strengthening regional collaboration and capacity on household surveys to address SDG data gaps and maximize the use of household surveys for evidence-based policy making, including by:

  - Aligning survey methodologies and indicator definitions across the region and adopting international best practices for household surveys and SDG indicators.
  - Sharing and learning from cross-country experiences through regional and global platforms.
  - Promoting public access to anonymized survey data, and encouraging research on regional priorities.
  - Building capacity on new approaches to household surveys, including the use of digital technologies in data collection for improved efficiency.
  - Reaffirming the importance of household surveys as part of long-term budgeted national statistics plans.

  [a] See the UN Big Data Regional Hub in the UAE.
  [b] See the UNICEF webpage on the MICS.
  [c] ESCWA, 2023.



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# Endnotes

1.  An estimate of needs for only high- and middle-income countries in the region, based on calculations using the ESCWA Financing for Development SDG Costing Simulator, put the financing gap at approximately $700 billion annually between 2023 and 2030; the actual figure would be significantly higher if accounting for the financing needs of least developed and conflict-affected countries.
2.  ESCWA, 2022b.
3.  See World Bank data, Foreign direct investment, net inflows (BoP, current US$) – Arab World, accessed on 21 November 2023.
4.  ESCWA, 2022b.
5.  Ibid.
6.  ESCWA, 2018.
7.  See the United Nations on Integrated National Financing Frameworks.
8.  See the Integrated National Financing Frameworks Facility, What Is an INFF?
9.  Ibid.
10. UNDP, 2020.
11. UN Women, 2019.
12. Rame and Seiwald, 2019.
13. See the International Budget Partnership, Open Budget Survey 2021 – Country Results.
14. ESCWA, 2022b.
15. PwC, 2022.
16. ESCWA, 2022b.
17. Ibid.
18. ESCWA, 2022b.
19. Countries include the Comoros, Djibouti, Egypt, Jordan, Kuwait, Lebanon, Mauritania, Morocco, Oman, the State of Palestine, Qatar, Saudi Arabia, the Syrian Arab Republic and Tunisia, in addition to the emirates of Abu Dhabi and Dubai in the United Arab Emirates.
20. ESCWA, 2023a.
21. Ibid.
22. Ibid.
23. Information derived from PwC tax summary profiles, Corporate tax credits and incentives, accessed on 28 November 2023. See also OECD, 2023a.
24. Ibid.
25. Ibid.
26. See World Bank data, Foreign direct investment, net inflows (BoP, current US$) – Arab World, accessed on 21 November 2023.
27. ESCWA, 2022b.
28. Ibid.
29. ESCWA, 2023a.
30. Ibid.
31. OECD, 2021.
32. See ESCWA on Financing Development in the Arab Region.
33. ESCWA and UNCTAD, 2022.
34. United Nations, 2023a.
35. United Nations, 2023b.
36. The Global Indicator Framework for the SDGs includes an indicator on fixed Internet broadband subscriptions (indicator number 17.6.1). However, it is useful to report on mobile Internet broadband subscriptions because broadband offers high-speed Internet and is always connected, thus eliminates the need for dial-up.
37. The Government AI Readiness Index covered 193 countries in 2023. It was developed by Oxford Insights and was first published in 2020. The index is based on 39 indicators that assess government readiness, technology sector capabilities, and data and infrastructure. For more information, see Oxford Insights, 2023.
38. ESCWA, 2023; ITU, 2023d.
39. For more information, see UNEP, 2023.
40. ESCWA, 2019.
41. ITU and UNESCO, 2022.
42. Recent data are available for Iraq and the State of Palestine. See ITU, 2023a.
43. Microsoft, 2022.
44. The E-Government Development Index is calculated by the United Nations Department of Economic and Social Affairs for all 193 United Nations Member States. The index comes out every two years as part of the United Nations E-Government Survey; 12 editions have been published since 2001.
45. Algeria, Bahrain, the Comoros, Djibouti, Egypt, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, the State of Palestine, Qatar, Saudi Arabia, Somalia, the Syrian Arab Republic, Tunisia and the United Arab Emirates.
46. UNDESA, 2022.
47. The system was developed by ICARDA, INRA and MIT. See Affordable and Sustainable Irrigation for Farmers.
48. Strategy&, 2021.
49. McKinsey, 2016.
50. See the United Arab Emirates National Strategy for Artificial Intelligence and Telecommunications and Digital Government Regulatory Authority, 2021.
51. ITU, 2023b.
52. Tunisia Ministry of Communication Technology, 2023.
53. ESCWA, forthcoming.
54. Egypt Ministry of Communications and Information Technology, 2022.

55. UNCTAD, 2022.

56. ESCWA, 2019, forthcoming.

57. The Moroccan Retail Tech Builder programme is jointly implemented by the Ministry of Industry and Commerce, the OCP Foundation and Mohammed VI Polytechnic University.

58. See the Morocco Ministry of Tourism, Handicrafts and Social and Solidarity Economy (2023) for a list of e-commerce platforms.

59. Affordable broadband is priced at less than 2 per cent of gross national income per capita (ITU, 2021).

60. The Comoros, Djibouti, Mauritania and Somalia.

61. Syrian Arab Republic Ministry of Communication Technology, 2021.

62. World Bank, 2021.

63. United Nations, 2023.

64. ESCWA, 2019.

65. Wamda, 2023b. Countries include Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, the State of Palestine, Qatar, Saudi Arabia, the Sudan, Tunisia, the United Arab Emirates and Yemen.

66. Wamda, 2023a.

67. Wamda, 2023b.

68. UNCTAD, 2022.

69. League of Arab States, 2023.

70. The technology to be used is the "open radio access network"; it will be deployed within, or over, existing legacy systems.

71. Joseph, 2021; International Teletimes, 2022.

72. Ooredoo, 2023.

73. The Arab Internet Governance Forum was established by ESCWA and the League of Arab States.

74. ESCWA, n.d.

75. MENOG, 2023.

76. ITU Arab Regional Cyber Security Center, 2023.

77. ESCWA, 2022b.

78. The national statistical office is usually in charge of collecting, processing, and disseminating data on a wide range of demographic, social, economic and environmental topics through population and housing censuses, surveys, registers and other administrative files, providing the bulk of the official statistics for the country.

79. Geospatial data are about objects, events or phenomena that have a location on the surface of the earth. The location may be static in the short-term (e.g., the location of a road, an earthquake, children living in poverty) or dynamic (e.g., a moving vehicle or pedestrian, the spread of an infectious disease). Geospatial data combine location information (usually coordinates on the earth), attribute information (the characteristics of the object, event or phenomena concerned) and often also temporal information (the time or lifespan at which the location and attributes exist). Stock and Guesgen, 2016.

80. Big data refer to large data sets, collected by companies and organizations, that are too large or complex to be processed by traditional methods and that cannot be comprehended when used in small amounts only.

81. See General Assembly resolution 68/261 on the Fundamental Principles of Official Statistics.

82. As of 2024, Algeria, Bahrain, Egypt, Jordan, Kuwait, Oman, the State of Palestine, Qatar and Saudi Arabia have completed the 2020 census round (which spans from 2015 to 2024). Djibouti, Iraq, Libya, Morocco, Somalia, Tunisia and the United Arab Emirates have plans for a census in 2024. Lebanon, the Sudan, the Syrian Arab Republic and Yemen are unlikely to meet the timeline for the 2020 census round.

83. The fundamental principles of official statistics were adopted by the United Nations General Assembly in January 2014. They recognize that reliable and objective information that adheres to certain professional and scientific standards is crucial for decision-making. See General Assembly resolution 68/261 on the Fundamental Principles of Official Statistics. See also a brief description of the 10 principles.

84. See the Doha Declaration on Modernization of Official Statistics in Support of the Sustainable Development Agenda 2030.

85. ESCWA, 2021.

86. Jordan, Libya, Mauritania, Oman, the State of Palestine, Qatar, Saudi Arabia, the Sudan, Tunisia, the United Arab Emirates and Yemen.

87. Jordan, Libya, Mauritania, Morocco, the State of Palestine, Qatar, Saudi Arabia and Yemen.

88. A national reporting platform (SDG platform) is a publicly available website or web portal for dissemination of indicators and national data for monitoring the SDGs. Platforms are essential to monitor and report progress. They create pathways for sharing transparent information, and provide policymakers with tools to evaluate and adjust development strategies based on high-quality and trustworthy data. See: ESCWA, 2020.

89. Such platforms have not been developed in the Comoros, Djibouti and Mauritania.

90. See more on Bahrain and the SDGs and its open data portal.

91. See more on Kuwait and the SDGs.

92. Open data are openly accessible, exploitable, editable and shared by anyone for any purpose.

93. See more on Qatar and the SDGs and its Third National Development Strategy.

94. See the UAE SDG Data Hub.

95. See more on the Tahat data initiative.

96. See Egypt SDG Observatory.

97. See Jordan SDG portal.

98. See the UNICEF webpage on the MICS.

99. See more on the ESCWA workshop on using SDMX for SDG data reporting.

100. See Tunisia SDG platform.

101. See the Iraq SDGs Platform by Anas Khaleel.

102. See Saudi Arabia Open Data Platform.

103. ESCWA, 2022a.

104. See, for instance, the Microdata Catalog of the Economic Research Forum; the World Bank's High Frequency Phone Survey in Iraq; UNICEF experiences with phone-based surveys in Egypt; and the State of Palestine on COVID-19 impacts on households.

105. Face-to-face contact with respondents to statistical surveys needed to be suspended to limit the spread of the virus.

106. See for instance the Arab SDG Gateway and the Arab SDG Monitor, which hosts 19 national reporting platforms to enhance country reporting and track SDG performance.

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