



SDG 12: Ensure sustainable consumption and production patterns

SDG 12 encapsulates the entire sustainable development paradigm at the local, national, regional and global levels. In the Arab region, the urgent need to address unsustainable consumption and production patterns is clearly reflected in trends such as increasing water scarcity, rapidly rising energy use and associated greenhouse gas emissions, escalating generation of waste, very low levels of reuse and recycling, and worsening air and water pollution. Several countries have recently adopted national sustainable consumption and production plans, a step in the right direction. Major adjustments to incentives driving unsustainable patterns of consumption and production are needed, however. Progress requires transforming from a focus on economic growth alone to an embrace of sustainable development, mobilizing and regulating the private sector to support such a transformation, and engaging communities and individuals in steering this paradigm shift.

Key facts

+60%

Domestic material consumption per capita in the Arab region increased by over 60 per cent from 1990 to 2015, coming close to the global average.¹ This reflects a rapid increase in the consumption of raw biomass, fossil fuels and minerals.

Material footprint

Material footprint per capita was at only one half of the global average in 2017, reflecting slower growth in the need for materials across the whole supply chain to service final demand.²

GCC

Domestic material consumption per capita is particularly high in the GCC subregion, at 2.5 to 3 times the global average, reflecting higher incomes and consumption rates. All other subregions are generally well below global averages.³ The material footprint is also higher in GCC countries.

70%



Per capita energy consumption in the region increased by close to 70 per cent from 1990 to 2014, outstripping rapid population growth. Energy consumption in GCC countries was very high, at close to four times the global average.

Energy subsidies 7.3% of GDP

Energy subsidies in the region are quite significant at around 7.3 per cent of GDP in 2017, well above the global average of 6.5 per cent. Levels are particularly high in the GCC subregion, up to 14.34 per cent in Saudi Arabia.⁴



In a region suffering from water scarcity, domestic water consumption per capita has declined marginally over the past decade, but it was slightly higher than the global average in 2014.⁵



The proportion of people serviced by municipal waste collection ranges from 100 per cent in three GCC countries⁶ to 67 per cent in Iraq and only 19 per cent in Yemen.⁷ Significant urban-rural inequalities exist.⁸



Municipal waste collected per capita was well above the global average in 2012, with very high levels in both the Mashreq and GCC subregions.



With the exception of the United Arab Emirates at 15 per cent, the percentage of municipal waste recycled is 10 per cent or less in the eight Arab countries⁹ that have reported this figure.¹⁰

7 Arab countries

The Arab Regional Strategy for Sustainable Consumption and Production was adopted by the Council of Arab Ministers Responsible for the Environment in 2009. At least seven countries¹¹ have adopted national sustainable consumption and production action plans or similar documents¹² targeting sectors such as energy, water, agriculture, industry and tourism.

International chemical conventions

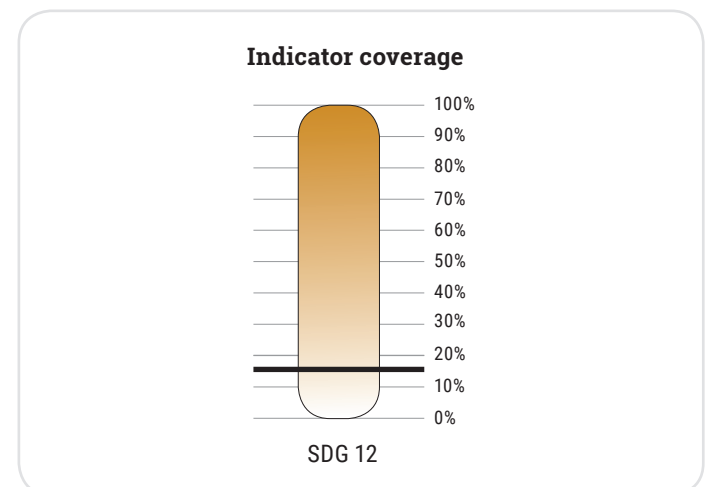
The Arab region lags behind the global average for compliance on key international chemicals conventions. Only the GCC subregion shows more compliance.¹³

Measuring SDG 12 in the Arab region according to the global SDG indicator framework

Data are available for 2 out of 13 indicators,¹⁴ covering 2 out of 11 targets under SDG 12.

SDG 12 targets focus primarily on intersections between economies and the environment, including resource consumption, waste and pollution. Several targets and indicators link to global environmental agreements, for example, relating to the safe management of chemicals (the Basel, Rotterdam and Stockholm Conventions) as well as the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns.

Out of 13 indicators, nine were categorized as tier III in 2018, meaning that methodologies remain under development. No data are available to set baselines on these indicators for Arab countries. Data availability is very poor overall. The lack of data represents a considerable challenge to measuring progress on Goal 12. Several indicators from closely related goals do have good data, however. These include renewable energy (7.2.1), energy efficiency (7.3.1), carbon dioxide per unit of value added (9.4.1), collection of urban waste (11.6.1), air pollution (11.6.2) and water pollution (3.9.2).



A range of other complementary national indicators can help fill data gaps in the short term and enable an initial assessment of progress. In many Arab countries, data are readily available for indicators on the consumption of natural resources (e.g., per capita water and energy consumption), per capita waste generation and per capita greenhouse gas emissions.

SDG 12 CONTAINS ONE TARGET TO BE ACHIEVED BY 2020

TARGET 12.4 - The environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks,

and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

The main barriers to ensuring sustainable consumption and production patterns in the Arab region

SDG 12 connects all countries, developed and developing. The global interdependence of consumption and production patterns means that change everywhere is necessary to achieve transformation anywhere. The principle of common but differentiated responsibilities will be critical to transformation in the Arab region, given significant historical variations in consumption and production patterns between regions. All actors—governments as well as businesses, civil society and individuals—have a responsibility to support this transformation at local, national, regional and global levels.

Unsustainable consumption and production are embedded in economic structures, production systems and processes, technologies, institutional settings and incentives, and the behaviour of producers and consumers. Such patterns drive climate change, resource depletion, land degradation and desertification, waste generation, vehicle congestion, and air and water pollution, and they impact human health in the region.

Action taken to achieve sustainable consumption and production has the potential to be transformational. Well-designed national policy frameworks and instruments could enable fundamental shifts in these patterns¹⁵ by changing the course of economic and social development. Multiple benefits could accrue,

including in agriculture (SDG 2), good health and well-being (SDG 3), water efficiency (SDG 6), energy efficiency (SDG 7), resource consumption (SDG 8), infrastructure and industry (SDG 9), the environmental impact of cities (SDGs 11 and 15), and climate change (SDG 13). Sustainable consumption and production therefore demand action on education for sustainable development and lifestyles (SDGs 4 and 13), increasing the share of renewable energy, enlarging investment in research and development and encouraging innovation, and improving the management of cities.

In 2015 in **Lebanon**, the Naameh landfill in southern Beirut, which was overflowing with waste, closed due to pressure from the local population living around the site. Without any clear alternative, garbage began to pile up on the streets of Beirut, exacerbated by very low levels of recycling.

Creating a master plan will be essential to developing the right infrastructure and defining the best investments in resolving Lebanon's waste crisis. Increased recycling through behaviour change and collection initiatives are important early steps. Waste-to-energy is also part of an integrated solution.

Source: Stella and others, 2018.

THE FOLLOWING ARE THE KEY BARRIERS TO ACHIEVING SDG 12 IN THE ARAB REGION

The main barrier to achieving SDG 12 in the region is a global one as well: **the absence of a fundamental, cross-cutting change to patterns of consumption and production, or a global shift in the entire paradigm of economic growth and development.**

Other barriers in the region vary across countries and sectors. Addressing them helps bring the region closer to realizing the transformative shift of SDG 12.

A linear economic model is still dominant

The take, make, use, dispose approach to production depletes natural resources and generates waste and emissions. In sectors such as construction, manufacturing and food production, material use during production is generally not optimized, product life is not maximized, and waste from the production and post-consumption phases is not reused. There are limited incentives in place to encourage the private sector to adopt more sustainable practices. A shift to a circular economy model could pay significant dividends, however. For example, GCC countries alone could save \$138 billion by 2030 by adopting a circular model in sectors such as chemical production, construction of buildings and infrastructure, and clean mobility and transport systems.¹⁶ These concepts need to be operationalized through comprehensive national frameworks.



Heavy reliance on resource extraction

In some GCC and Maghreb countries, diversification into less resource-intensive sectors (SDG 8) has been limited. The region holds the world's largest reserves of crude oil and is the largest producer of fossil fuels, and they are an important factor in regional economic growth. Decoupling economies from resource consumption while global demand for such resources continues to grow is challenging, especially in the absence of political commitment to change the understanding and planning of economic growth.



High costs and other resource constraints limit the adoption of sustainable, efficient technologies and practices



High costs and other resource constraints are evident in infrastructure (buildings, energy, water, transport), industry, agriculture and the production of household appliances as well as in the delivery of key services such as waste and sanitation. For example, an estimated 80 per cent of municipal solid waste in the region is decomposable organic matter or recyclable materials.¹⁷ But most of this waste ends up in unsealed landfills. Recycling rates remain low, at generally less than 10 per cent and often much lower.¹⁸ Further, compostable solid waste is often mixed with industrial and hazardous medical wastes during collection and disposal, which results in contamination and limits sustainable treatment options. Some countries have prototyped waste-to-energy technologies using incineration and anaerobic digestion, but such practices have not been scaled up due to high costs and low technical capacity.

Lower political priority



Lower political priority is given to sustainable production and consumption measures, which limits their impact. Despite being closely linked to benefits for economic development and a broad range of productive sectors, sustainable consumption and production measures are often perceived as an environmental management issue to be administered by environmental ministries with limited resources and influence. More work is needed to ensure that the private sector is actively engaged, and that public-private partnerships, especially in resource management and service delivery, support a transformative shift to more sustainable consumption and production patterns.

Inefficient subsidies, pricing and cost recovery measures



Inefficient subsidies, pricing and cost recovery measures contribute greatly to unsustainable production and consumption of energy and water resources. Energy subsidies are some of the highest in the world. Artificially low prices for water services effectively subsidize consumption, and result in inefficiency and overuse.¹⁹ Given the scarcity of freshwater, many countries rely on desalination and/or groundwater pumping, which are expensive and energy and emissions intensive. Low service fees and lack of cost recovery for waste management operations strain national budgets and limit sustainable practices.

Lack of education and awareness



Lack of education and awareness of sustainable production and consumption, including related to food and diets, resource and waste minimization, and reuse and recycling, further hamper progress on SDG 12. Diets are increasingly unhealthy, based on overconsumption and result in obesity and diet-related health problems. Food loss and waste are prevalent (SDG 2), driven by deficient post-harvest practices; inappropriate technologies for handling, transporting and processing food; inadequate transport and other infrastructure; rodent and pest infestation during storage; and insufficient refrigeration.²⁰

Since 2009, the Department of Tourism and Commerce Marketing of Dubai has supported the **tourism sector** to reduce its energy consumption by 17 per cent and water consumption by 14 per cent. Carbon dioxide emissions have declined by 688,000 tons. Hotels are encouraged to increase green areas and include local species among their plants.

Source: UNWTO, 2018.

The **Sudan's intended nationally determined contributions** to mitigating climate change highlight a range of sustainable consumption and production measures to increase access to electricity and support rural electrification, and improve energy efficiency, forest coverage and waste management services. This requires the adoption and roll-out of modern, clean technologies, including wind, solar, geothermal, hydro and waste-to-energy, as well as natural gas generation, compact fluorescent and LED lamps, efficient appliances and sanitary landfills with treatment and recycling facilities. The estimated cost of mitigation measures is \$11.7 billion. An additional \$1.2 billion is flagged for climate adaptation measures. While the Government will contribute, considerable international financial support will be needed to implement these measures.

Source: The Republic of Sudan, 2015.

At risk of being left behind

Given the interdependence of sustainable consumption and production patterns across regions, countries and communities, the failure to progress on SDG 12 will have negative consequences for all. Some countries and groups are more vulnerable to these consequences, however, even as they have more limited prospects to participate in—and benefit from—a transformative shift in consumption and production.

The least developed countries in the Arab region are at a particular disadvantage, given resource and capacity constraints. For them, a step such as adopting stringent environmental standards might place unrealistic demands upon relatively weak economies, dragging down productivity, growth and incomes. These countries need substantial technical support and financial assistance to move towards clean, modern technologies and practices that help achieve sustainable consumption and production.

Poor communities in informal and unplanned settlements usually experience low levels of service delivery, including for water, electricity and waste collection. Such communities bear the brunt of pollution from waste and landfill sites, and in water and air. Conventional, modern, technological solutions to solve such problems are typically centralized, capital-intensive and top-down, however. They often do not take into account the voices or needs of the large number of informal workers in informal settlements (for example, in the waste sector) and the impacts on their livelihoods and health.

Sustainable consumption and production will require transitions in agriculture, industry, energy, construction

and transport. Labour markets will shift, and new employment opportunities will arise. As these are often male-dominated industries, however, changes may not result in immediate benefits for women, given gender segregation in labour markets. Women are more highly concentrated in low value-added jobs. Many informal workers in waste collection and recycling are **women and children**, and they are exposed to several health risks. The higher-tech nature of future job opportunities will require greater levels of education that are out of reach for a disproportionate share of women, particularly in science, technology, engineering and mathematics. And even though female enrolment in STEM fields tops 60 per cent in some universities, this still does not translate into employment.²¹ Levelling structural inequalities in education and employment requires addressing the primary driver—gender discrimination.

The National Action Plan on Sustainable Consumption and Production of the **State of Palestine** focuses on agriculture and food, tourism, and housing and construction. The plan was developed through a widely consultative process, involving the Government, NGOs, the private sector and academia. One of the key criteria used to prioritize and fund initiatives was the increased inclusion of marginalized populations such as women and youth. Initiatives have included extension services targeting Bedouin women farmers and the expansion of school health programmes to emphasize children's nutrition and awareness of healthy food choices.

Source: Environment Quality Authority of Palestine, 2016.

What the region can do to accelerate progress on SDG 12

SDG 12 requires the commitment and action of different actors, including governments and the private sector, as well as changes to behaviours and practices in many arenas. Critical to its achievement is an overhaul of economic planning (SDG 8) to take into account social and environmental dimensions, and the sustainability of consumption and production.

1. Establish national policies and incentive frameworks for sustainable consumption and production:

- Adopt national action plans and mainstream sustainable consumption and production into existing national strategies and plans, particularly for industry, agriculture, energy, water, transport, health and waste.
- Reduce and phase out inefficient subsidies, and address inadequate pricing and cost recovery mechanisms for essential services such as water and waste management.
- Enhance public-private partnerships, and create incentives for efficiency improvements and investment in modern, sustainable technologies in energy, water, waste and transport. This could include a mix of measures such as rebates, reduced taxes, more targeted subsidies, price signals, access to water rights/tradeable water permits and other incentives.
- Introduce integrated solid waste management strategies focusing on preventative waste management: reduce waste (waste minimization, changing habits); reuse and recycle (separate

collection systems, recycling centres); recovery (waste-to-energy technologies); and residual management (final disposal, landfilling).

- Introduce regulations and incentives to support circular economy practices, including to optimize resource inputs, maximize product use, and recover by-products and waste. This could include initiatives to build national capacities to better absorb and replicate clean technologies and integrate resource efficiency and cleaner production in national policies.

2. Improve knowledge to inform policies and change behaviours in line with sustainable consumption and production:

- Strengthen the science-policy interface to inform planning and implementation across the SDGs, and enhance the contributions of academics and researchers to policy discussions as well as monitoring and evaluation mechanisms.
- Close the extensive data gaps that hinder informed policy and planning responses, and set baselines and monitor progress on SDG 12 indicators. Waste and chemicals management should be targeted for improved data collection as a matter of urgency.

- Increase public awareness, education and technical training related to sustainable consumption and production technologies, and practices such as waste reduction and minimization, recycling and composting, and sustainable and nutritious diets.
- Integrate sustainable development and associated behavioural change into school curricula at all levels.
- Strengthen the role of local communities in developing recycling and waste policies.
- Strengthen monitoring and evaluation capacity at all levels to guide the transition to more sustainable consumption and production, and ensure compliance with regulations.

3. Mobilize regional and global support to transfer technology to the least developed countries:

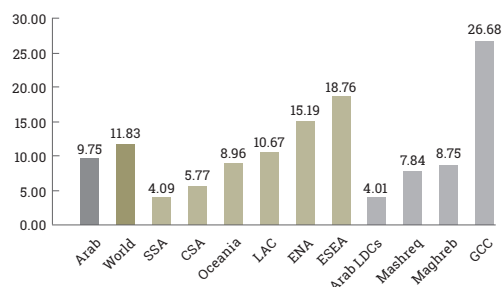
- Increase access of least developed countries to needed expertise and finance to achieve sustainable economic growth and identify opportunities for green growth.

SDG 12 targets and indicators in the Arab region

Target	Indicator	Data
<p>12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries</p>	<p>12.1.1 Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or a target into national policies</p>	<p>Adopted criteria to obtain a regional aggregate are not met for this indicator.</p>
<p>12.2 By 2030, achieve the sustainable management and efficient use of natural resources</p>	<p>12.2.1 Material footprint, material footprint per capita, and material footprint per GDP</p>	<p>Adopted criteria to obtain a regional average are not met for this indicator.</p>

12.2.2
Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP

Figure 1 Domestic material consumption per capita (metric tons)



Note: All means are population weighted using the latest (2015) population estimates (United Nations Population Division, 2017 and United Nations Statistics Division, 2019). The calculated Arab regional aggregate includes the data values of all Arab countries in 2017 except the State of Palestine. According to the SDG Indicators Metadata Repository, "Domestic Material Consumption (DMC) is a territorial (production side) indicator reporting the apparent material consumption of a national economy." Further, "DMC reports the actual amount of material in an economy. A country can, for instance, have a very high DMC because it has a large primary production sector for export or a very low DMC because it has outsourced most of the material intensive industrial process to other countries" (United Nations Statistics Division, 2019). This indicator is the exact repetition of indicator 8.4.2.

12.3
 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses

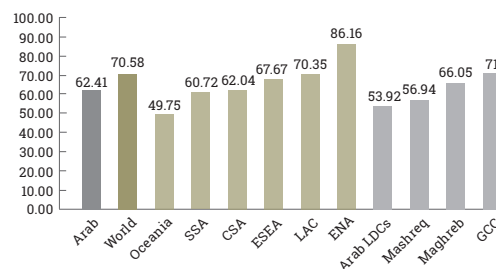
12.3.1
Global food loss index

Adopted criteria to obtain a regional average are not met for this indicator.

12.4
 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

12.4.1
Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement

Figure 2 Level of compliance with international multilateral environmental agreements on hazardous waste and other chemicals (index)



Note: An index is the simple arithmetic mean of the compliance percentage scores for the four considered conventions (the Basel Convention, the Stockholm Convention, the Montreal Protocol and the Rotterdam Convention). Global, regional and subregional aggregates of the created index are the simple means of the country values, as this is a State level indicator. The calculated Arab regional aggregate for the created index includes the data values of the following Arab countries for 2015: Bahrain, Djibouti, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, United Arab Emirates and Yemen.

12.4.2
Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment

Adopted criteria to obtain a regional average are not met for this indicator.

12.5
 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

12.5.1
National recycling rate, tons of material recycled

Adopted criteria to obtain a regional average are not met for this indicator.

<p>12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle</p>	<p>12.6.1 Number of companies publishing sustainability reports</p>	<p>Adopted criteria to obtain a regional average are not met for this indicator.</p>
<p>12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities</p>	<p>12.7.1 Number of countries implementing sustainable public procurement policies and action plans</p>	<p>Adopted criteria to obtain a regional average are not met for this indicator.</p>
<p>12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature</p>	<p>12.8.1 Extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment</p>	<p>Adopted criteria to obtain a regional average are not met for this indicator.</p>
<p>12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production</p>	<p>12.a.1 Amount of support to developing countries on research and development for sustainable consumption and production and environmentally sound technologies</p>	<p>Adopted criteria to obtain a regional average are not met for this indicator.</p>
<p>12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products</p>	<p>12.b.1 Number of sustainable tourism strategies or policies and implemented action plans with agreed monitoring and evaluation tools</p>	<p>Adopted criteria to obtain a regional average are not met for this indicator.</p>
<p>12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities</p>	<p>12.c.1 Amount of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels</p>	<p>Adopted criteria to obtain a regional average are not met for this indicator.</p>

Note: Central and Southern Asia (CSA); Eastern and South-Eastern Asia (ESEA); Europe and Northern America (ENA); Gulf Cooperation Council (GCC); Latin America and the Caribbean (LAC); Arab Least Developed Countries (Arab LDCs); Oceania (excluding Australia and New Zealand); Sub-Saharan Africa (SSA). All figures are based on the Global SDG Indicators Database (United Nations Statistics Division, 2018b).

ENDNOTES

1. UNEP, 2019a.
2. UNEP, 2016.
3. UNEP, 2016; ESCWA, 2017.
4. IMF, 2019; IMF 2017.
5. Analysis is based on “annual freshwater withdrawals, total (billion cubic metres)” and “annual freshwater withdrawals, domestic (percentage of total freshwater withdrawal)” with data from World Bank, 2017. See also ESCWA, 2017.
6. Kuwait, Qatar and United Arab Emirates. Note that for this key fact, data are available for nine Arab countries.
7. United Nations Statistics Division, 2018c.
8. Kaza and others, 2018. The regional country grouping for this statement is defined in the reference.
9. Algeria, Egypt, Lebanon, Morocco, Qatar, State of Palestine and Tunisia.
10. United Nations Statistics Division, 2018a.
11. These countries are: Algeria (2016), Egypt (2015), Jordan (2016), Lebanon (2015), Morocco (2015), State of Palestine (2016) and Tunisia (2016).
12. Technical assistance for developing these plans has been provided through the SWITCH-Med programme funded by the European Union and implemented by the United Nations Industrial Development Organization, UN Environment and regional centres (SwitchMed, 2017).
13. Calculated by ESCWA, see figure 2.
14. According to the methodology used in this report.
15. UNEP, 2019b.
16. Bejjani and others, 2019.
17. Al-Yousfi, 2006.
18. Data for selected countries are available from United Nations Statistics Division, 2018a.
19. AFED, 2011.
20. ESCWA and FAO, 2017.
21. Islam, 2017.

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