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Progress towards achieving SDG 12 in North Africa

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* ECA/SRO-NA/ICSOE/37/1

Executive Summary

1. Although North African countries (NACs) have the best performance in Sustainable Development Goals (SDGs) achievement across Africa and its subregions, important challenges remain towards achieving the SDGs and the Agenda 2063. The COVID-19, the war in Ukraine and climate change effects have impacted the current global context and are really standing in the way of achieving international development Agendas. Even before the Covid-19 shocks, many SDGs would not be within reach by 2030. The recent shocks underscore the necessity to build resilience and adopt adequate measures and transform economies in the region.

2. Policymakers all over the world, including in North Africa, are aware of the climate change crisis and the need to move their populations swiftly towards more sustainable production and lifestyles. In this context, this report assesses the progress made by NACs in achieving SDGs with a focus on SDG12 aiming to ensure sustainable consumption and production patterns, including by doing more and better with fewer environmentally damaging inputs. It is also about decoupling economic growth from environmental degradation and climate change, increasing resource efficiency, and promoting both sustainable production and lifestyles.

3. The performance of NACs in attaining SDG12 remains modest with significant environmental impacts, CO2 emissions, water stress, food insecurity and land degradation. The trend is positive for some targets and negative for others. Significant challenges remain, especially in reducing energy intensity of production. In absolute terms the global situation worsened and relatively improved at a slower pace.

4. Our analysis shows that structural transformation is needed toward more sustainable consumption and production. The production process needs to be transformed without the unsustainable use of resource and emissions and with better management of hazardous substances and waste. The decomposition of carbon emission changes shows that rising emissions are mainly explained by the growth of the population and that the increase in CO2 emissions per capita continues to outpace the growth of GDP per capita. This calls for (i) structural reform to shift production patterns to less energy-intensive ones (e.g., from industry to some services, for example) and (ii) increased energy efficiency in production of existing goods and services, implying need for accelerated renewable energy transition.

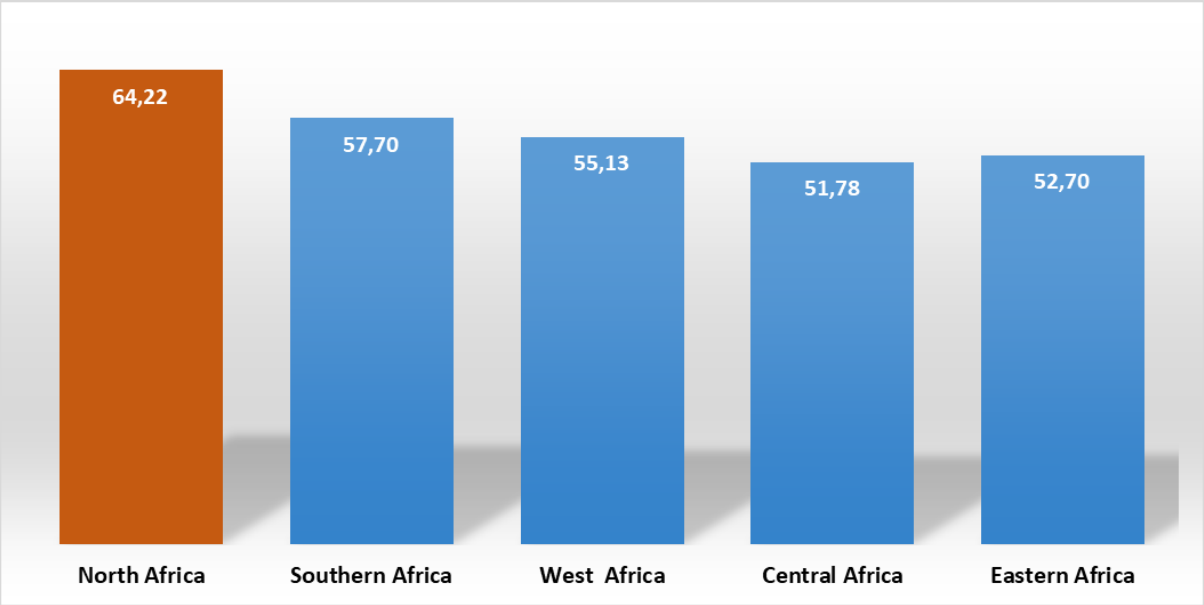
5. The current multiple crises context (COVID-19, Russia-Ukraine war, and climate change) underscores the importance of achieving SDG 12 in North Africa while also providing new opportunity for countries to transit from a linear to a circular economy in which waste and pollution are drastically reduced and natural systems are regenerated. Firms, including small and medium-sized enterprises (SMEs), could play an important role in the production transformation and achieving Goal 12 in the region. Firms particularly can contribute to the transition by developing competencies in circular design to implement product reuse, and recycling, and serving as trend-setters of innovative circular economy business models. Policy makers can support the transition by promoting the reuse of materials and higher resource productivity by rethinking incentives and providing the right set of policies and access to financing.

1. Introduction

6. Despite the progress and the efforts made by NACs towards achieving the SDGs and the Agenda 2063, important challenges remain. The COVID-19 pandemic, global impacts of the war in Ukraine and climate change have added additional constraints.

North Africa is the best performing subregion on the continent with the highest subregional 2022 SDGs index score (Graph 1). However, lockdown measures, interruptions in supply and demand, and disruptions in linkages with global value chains have presented major setbacks on progress made. On the economic front, these reflected through decreased revenues from exports, tourism, and remittances as well as reduced capital flows and generated additional social challenges such as increased inequality, poverty, hunger, and youth unemployment.

Graph 1: 2022 Average SDG Index Score by region, Africa



Source: SDG Index Database, 2022[1].

7. The 2022 SDG report (Table 1) has revealed that Algeria, Tunisia, and Morocco lead the regional scores and rank in the top three (3), at the continental and Sub-regional level, with an average index score of more than 69 on scale of 0 to 100, the higher the better. At the global level Finland (score 86.5), Denmark (score 85.6) and Sweden (85.2) are the 3 top countries.

8. The findings indicate that NACs are on track to achieve several SDGs: SDG4 (education), SDG6 (Clean Water and sanitation), SDG9 (industry, innovation, and infrastructure), SDG12 (sustainable consumption and production patterns) SDG13 (climate action), SDG16 (peace, justice, and strong institutions), and SDG 17 (partnerships for the achievement of the SDGs). However, challenges to achieve SDG 1 (No poverty), SDG 5 (Gender equality), SDG 8 (Decent work and economic growth) and SDG 10 (Reduced inequalities) remain important.

[1] Sachs, J., Lafortune, G., Kroll, C., Fuller, G., Woelm, F., (2022). From Crisis to Sustainable Development: the SDGs as Roadmap to 2030 and Beyond. Sustainable Development Report 2022. Cambridge: Cambridge University Press.

Table 1: North Africa SDG Index score, 2022

Country	2022 SDG Index Score	2022 SDG Index Rank (total 163 countries)
Algeria	71,5	64
Egypt	68,7	87
Libya	n/a	n/a
Morocco	69,0	84
Mauritania	55,8	132
Sudan	49,6	159
Tunisia	70,7	69

Source: SDG Index Database, 2022[2].

9. In terms of global ranking, Algeria (64) and Tunisia (69) ranked high for its level of income among the 163 countries selected under the 2022 report. Morocco (84) and Egypt (87) occupy middle-level positions, while Mauritania (132) and the Sudan (159) were ranked low. The progress in SDG index by country as analyzed in the SDG report 2022[3] shows an improvement in the performance of Algeria in 3 SDGs (4, 12, 17), in 4 SDG for Egypt (6, 10, 12, 13), in 3 SDGs for Morocco (6, 12,13), in 4 SDGs for Tunisia (4, 6, 12, 13) and 1 SDG for Mauritania and Sudan (13).

Table 2: Evolution of SDG Index Score by country, North Africa

	Algeria	Egypt	Mauritania	Morocco	Sudan	Tunisia
2006	65,1	64,4	47,5	61,9	46,3	65,9
2010	66,8	65,1	49,6	63,7	47,1	67,4
2015	70,1	66,8	53,9	66,5	48,0	69,1
2019	70,5	67,6	55,7	68,5	49,7	70,0
2020	71,5	68,4	55,7	68,8	49,5	70,5
2021	71,5	68,5	55,7	68,9	49,5	70,6

Source: SDG Index Database, 2022.

10. In addition to the COVID-19 socio-economic impacts, the Russia-Ukraine war has affected heavily the North Africa region with the increase in food, fuel, and fertilizer prices and volatility as well as disruption of supply chains. The current global context –Covid with the energy crisis and food security issue - has impacted the slight progress of NA countries to achieve SDGs and makes the need to accelerate efforts and reforms by governments more pressing today than ever.

11. Together with the health crisis and climate change threats, the Russia-Ukraine war may negatively impact NA countries performance and induce a significant setback to SDG progress for all countries including North African countries. Financing the gap to achieve the SDGs and COVID-19 recovery remains also a major challenge for the region and needs concrete actions to mobilize additional fundings and initiate systemic and innovative changes in public and private finance.

[2] The 2022 SDG Index covers 163 countries.

[3] Jeffrey D. Sachs, Guillaume Lafortune, Christian Kroll, Grayson Fuller, and Finn Woelm: The SDG Report 2022: From Crisis to Sustainable Development: the SDGs as Roadmap to 2030 and Beyond, Cambridge University Press.

12. Plans to achieve SDG12 – ensuring responsible consumption and production patterns -- by 2030 were also affected by the health crisis and the current Russia-Ukraine war, which together have caused disruptions in production and consumption over the last two years. This goal calls for responsible consumption and production, essentially (i) achieving economic growth without the unsustainable use of resource and emissions and destructive impacts on the planet and (ii) improving the management of hazardous substances and waste. Put differently, SDG-12 lays emphasis on the ever-present trade-off between people's unlimited wants and the planet's limited capacity to meet them. Those limits must be well understood and respected in consumption and production patterns. The goal has eleven (11) targets and thirteen (13) indicators for reporting.

13. The 2022 North Africa report towards SDGs aims to track the region's global performance in achieving the 2030 Agenda with a focus on SDG12 and especially responsible production. It provides a comprehensive overview of the progress achieved so far towards this objective. With SMEs playing an important role in the region's employment and production, given firms' composition in North Africa, the report pays special attention to their role. It compares SMEs' sustainability performance with those of large enterprises (defined as 100 or more employees) and assesses how SMEs and large firms can contribute to achieving Goal 12 in the subregion. To achieve SDG 12 in North Africa, all firms, including SMEs, need to contribute also through greening their operations. The report suggests new solutions that enable the move towards responsible consumption and production patterns, especially that COVID-19 shows good practices for environment with less pollution and wastes and the Russia-Ukraine war is forcing countries to move faster to renewable energy. This could be done through better understanding of environmental and social impacts of products and services, both of product life cycles and how these are affected by use within lifestyles[4].

14. The rest of this report has three (3) sections. The first section presents North African countries progress toward achieving SDG 12 and outlines existing policy instruments to incentivize sustainable production in each country. The second section analyzes the role of firms, especially SMEs, in fulfilling SDG 12 (with focus on sustainable production) and presents the challenges and opportunities. Finally, the third section concludes and provides policy recommendations and actions towards the achievement of SDG 12 in North Africa.

2. North African countries performance for SDG 12

15. SDG 12 calls for responsible consumption and production, essentially (i) achieving economic growth without the unsustainable use of resource and emissions and (ii) improving the management of hazardous substances and waste. It aims to ensure sustainable consumption and production patterns by substantially reducing waste generation through prevention, reduction, and recycling by 2030. It also promotes sustainable management of natural resources, sustainable production, lifestyles, and consumption behaviors, as well as sustainable business practices and reporting for businesses. In addition, SDG12 calls for integrating sustainability to public procurement and promotes international cooperation on research and development that facilitate sustainable consumption and production.

16. The circular economy can go a long way towards achieving this goal. It is an economy in which waste and pollution do not exist by design, products and materials are kept in use, and natural systems regenerated provides much promise to accelerate implementation of the 2030 Agenda[5]. The circular economy holds promise for achieving multiple SDGs, including SDGs 6

[4] https://www.un.org/sustainabledevelopment/wp-content/uploads/2019/07/12_Why-It-Matters-2020.pdf
[5] https://www.ellenmacarthurfoundation.org/circular-economy.

on energy, 8 on economic growth, 11 on sustainable cities, 12 on sustainable consumption and production, 13 on climate change, 14 on oceans, and 15 on life and land. In recent years, the circular economy has gained increasing prominence as a tool which presents solutions to some of the world's most pressing crosscutting sustainable development challenges and could be an important solution to North African countries. This is because North African countries with their vast natural resources and fast-growing population can leapfrog to a low-emission and climate-resilient development model by adopting circular economy principles. Given the employment challenge, an effective circular model for NA must focus on green job creation.

17. The transition from the current linear to a circular economy requires concerted efforts by stakeholders from all sectors combined. Firms particularly can contribute to the transition by developing competencies in circular design to implement product reuse, and recycling, and serving as trend-setters of innovative circular economy business models. Policy makers can support the transition by promoting the reuse of materials and higher resource productivity by rethinking incentives and providing the right set of policies and access to financing[6].

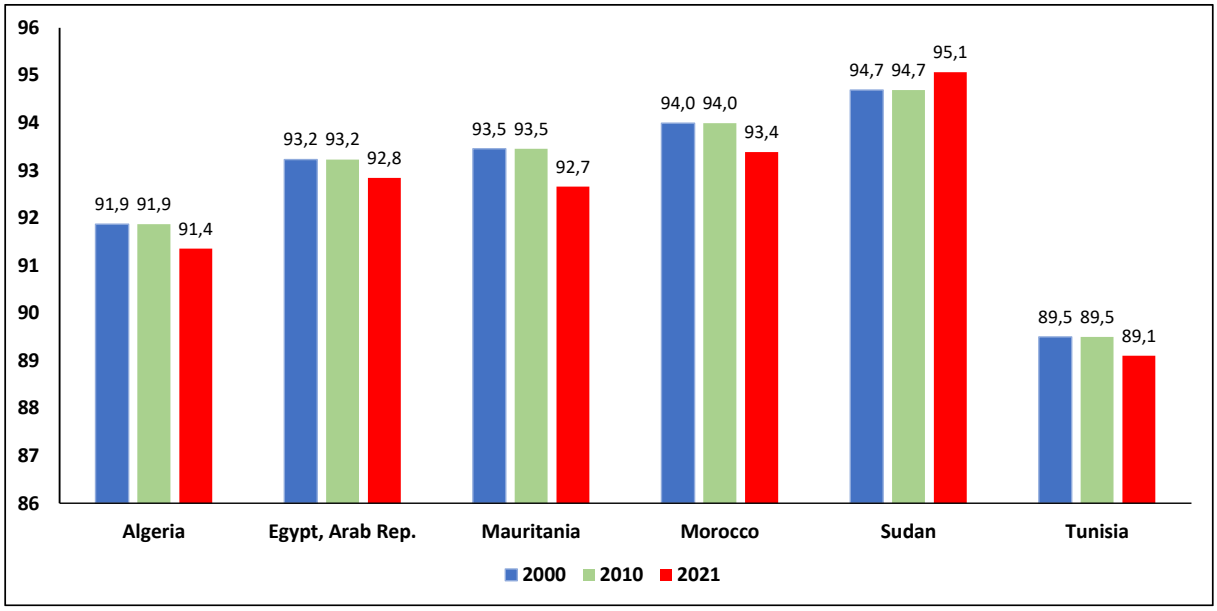
18. Achieving SDG12 and the transition to a circular economy in North Africa is gaining importance in such international context and development challenges. Research shows that the circular economy offers a $4.5 trillion economic opportunity by reducing waste, stimulating innovation, and creating employment[7]. Moving towards a circular economy could help North African countries reduce pressure on the environment, improve the security of the supply of raw materials, increase competitiveness, stimulate innovation, boost economic growth, and create sustainable and green jobs. From the consumption side, this will provide consumers with more durable and innovative products that will increase the quality of life and save them money in the long term.

2.1. Status of SDG 12 in North Africa

19. According to the 2022 SDG Index and Dashboards Report, NACs performance on SDG 12 was relatively satisfactory with positive trends for some targets and low performance for others. Significant challenges remain. Sudan, Morocco, and Mauritania are on track to achieve SDG 12 by 2030 despite the recent decline for Mauritania and Morocco due to the pandemic. Only Sudan's score improved in 2021. Algeria, Egypt, and Tunisia are also progressing, albeit at a slower pace, and with significant difficulties. In 2021, Sudan was the best performing country (95.1 score) in North Africa and Tunisia was the least successful country (89.1 score[8]).

[6] https://www.ellenmacarthurfoundation.org/circular-economy/building-block
[7] European Parliament (2020): Report on the New Circular Economy Action Plan.
8 The index/score (between 0& 100) measures progress towards achieving a specific Sustainable Development Goal target since 2000.

Graph 2: Trend of SDG 12 index (0-100) by country, North Africa



Source: The Africa SDGs Progress Dashboard.

2.2. SDG 12 progress at indicator level

20. Monitoring SDG 12 and assessing the progress achieved by countries is challenging when data are missing and/or not produced. SDG 12 is among the SDGs where data is particularly limited and not produced by all countries. In this section, the analysis will focus on the 5 available indicators:

- Domestic material consumption;
- Compliance with hazardous waste conventions;
- Hazardous waste generated/treated;
- Renewable energy capacity;
- Fossil fuel subsidies.

21. Algeria is performing well in the two (2) indicators related to compliance with hazardous waste conventions and fossil fuel subsidies and is on track for its achievement. However, the country is not improving its performance in the two (2) indicators related to domestic material consumption and renewable energy capacity with difficulties to be achieved by 2030. The worst performance is related to hazardous waste generated/treated where the country is regressing and facing major challenges to overcome. Algeria needs to accelerate reforms and take decisive actions to change and reduce the environmental impacts of the consumption and production patterns.

22. Egypt is performing well and is on track to achieve the targets. The country already achieved the target related to renewable energy capacity and is performing relatively good in the target related to reduction of fossil fuel subsidies. It also made good progress in compliance with hazardous waste conventions. However, it faces challenges in 2 indicators related to domestic material consumption and hazardous waste generated or treated during the production process. These areas need additional efforts to accelerate the transition toward a more sustainable consumption and production in Egypt.

23. Libya faces important challenges for the five (5) indicators, and it is unlikely to achieve the targets by 2030. The performance for the three (3) following indicators are in the red and the country is regressing: (***i***) Domestic material consumption, (***ii***) Hazardous waste generated/treated and (***iii***) Fossil fuel subsidies. For the other two (2) indicators the progress is very slow particularly for the indicator on renewable energy capacity. To overcome these challenges new strategies and programmes are needed to change the Libyan production model and reduce environmental impacts of production and consumption.

24. Mauritania's performance is subdued in four (4) indicators and is in the red and in regression in the following three (3) indicators: compliance with hazardous waste conventions, hazardous waste generated/treated and fossil fuel subsidies. The performance for domestic material consumption is also far below the target for 2020 and it is unlikely to be achieved by 2030. More positively, during recent years the country has accelerated efforts to achieve the indicator related to renewable energy capacity. Mauritania needs also to change the production and consumption models, thus reducing the environmental impacts of production and consumption.

25. Morocco is performing well in the indicator related to renewable energy capacity (already achieved). It has however made little progress in the two (2) indicators related to domestic material consumption and compliance with hazardous waste conventions. Still, it is behind the targets for 2022; additional efforts are needed to achieve the targets by 2030. However, the country is regressing in the two (2) remaining indicators, namely on hazardous waste generated/treated and fossil fuel subsidies. Like for other countries in the region, accelerating the transition toward a more sustainable production and consumption and changing the production process will help Morocco reduce the negative environmental impacts.

26. Sudan is performing well in two indicators: renewable energy capacity and fossil fuel subsidies; it has already achieved these targets. However, it has made little progress in compliance with hazardous waste conventions, where it remains far below the 2020 target. The other two indicators on hazardous waste generated/treated and fossil fuel subsidies are in the red. The country has been regressing, underscoring the importance of also adopting more sustainable production and consumption processes with positive environmental impacts.

27. Tunisia is performing well on the 3 indicators related to domestic material consumption, compliance with hazardous waste conventions and renewable energy capacity, which are on the path to be achieved by 2030. However, regression and indicators in red are observed on hazardous waste generated/treated and fossil fuel subsidies showing that the production system in Tunisia is not sustainable and needs additional efforts to reduce its negative environmental impacts.

28. Finally, the analysis of the progress per country achieved at indicator level shows that additional efforts are needed from North African countries especially for target: 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" and its two indicators 12.4.1 and 12.4.2 related to hazardous waste.

29. All countries in the region are far from the target for indicator 12.4 related to hazardous waste generated/treated and that the treatment of hazardous waste during the production process is unattainable and not respecting environmental norms. North African countries are regressing and not progressing toward reducing/eliminating hazardous waste during the production process and the waste are increasing due to the production process not respecting environmental norms and not recycling the waste. This highly impacted the environment and demands from all types of North African firms more efficient and environmentally friendly management of

materials across the lifecycle, through production, consumption, and disposal. The analysis also shows that despite the growing urgency of the climate crisis, Governments are still subsidizing the fossil fuel industry.

30. To ensure a sustainable consumption and production, it is imperative to reduce the material footprint, i.e., the total amount of raw materials extracted to meet final consumption demands. It is one indication of the pressures exerted on the environment to support economic growth and to satisfy the material needs of people. The material footprint per capita remains low in North African countries despite disparities between countries and the alarming rate at the global level[9].

31. The latest available data shows that in 2017 and in terms of kg per unit of GDP, the material footprint for Algeria stood at 1.9, 2.9 for Egypt, 5.6 for Libya, 5.7 for Mauritania, 2.2 for Morocco, 3.5 for Sudan and 2.2 for Tunisia. The material footprint is increasing in North Africa, and it is important to ensure that over the medium term it is not growing at a faster rate than economic output. the importance of decoupling the material footprint growth from real GDP growth cannot be emphasized enough.

Table 3: SDG 12 progress at indicator level since 2020, North Africa

	Algeria	Egypt	Libya	Mauritania	Morocco	Sudan	Tunisia
Domestic material consumption							
Compliance with hazardous waste conventions							
Hazardous waste generated treated							
Renewable energy capacity							
Fossil fuel subsidies							

Regress *On track or maintaining achievement* *Challenges remain*

Significant challenge

Source: The Africa SDGs Progress Dashboard, 2022.

[9] In 1990, about 8.1 metric tons of natural resources were used to satisfy an individual's needs. In 2017, that figure rose to 12.2 metric tons, an increase of 50 per cent.

32. Given that domestic material consumption and electronic waste generated per capita increase*d* for all North African countries (see table *4*), the region still has not improved the efficiency of resource use. Additional efforts are needed for stronger decoupling of economic output and domestic material consumption.

33. Countries have already made important efforts to reduce domestic material consumption and electronic waste. Egypt, for example, launched in 2020 an application to incentivize people to recycle their electronic appliances. E-Tadweer, the app launched in collaboration with the Ministry of Communications and Information Technology, aims at helping Egyptians decrease their use of electronic devices and safely dispose of them once they malfunction. In addition to creating and facilitating an environment-friendly process to get rid of e-waste, such projects create jobs in the electronic waste treatment field. In Tunisia, a centre for recyclable materials was set up to collect and recycle various valuable waste materials (waste electrical and electronic equipment). Besides the positive environmental effect, the project helps create jobs directly in the waste disposal and recycling industry and in related sectors such as mechanical engineering.

Table 4: Evolution of domestic material consumption and electronic waste in North Africa

	Algeria	**Egypt**	**Libya**	**Mauritania**	**Morocco**	**Sudan**	**Tunisia**
Domestic material consumption (metric tons per capita)							
2000	4.8	6.0	9.7	5.5	4.6		7.7
2017	9.0	7.9	11	7.4	7.9	5.4	9.3
Electronic waste (Kg per capita)							
2000	3.0	1.9	8	0.4	1.2	0.7	1.8
2019	7.1	5.9	11.5	1.4	4.6	2.1	6.4

Source: United Nations, Department of Economic and Social Affairs, Statistics Division, Country Profiles, 2021.

34. The analysis of the SDG 12 score of North African countries shows that actions are needed to reduce the natural resources and toxic materials used, and decrease the waste and pollutants generated, throughout the entire production and consumption process. In this context, and to achieve SDG 12, countries are highly encouraged to invest in more sustainable consumption and production patterns. Suggested measures include specific policies and international agreements on the management of materials that are destructive to the environment. This is critical considering the challenges confronting the subregion in terms of water, energy, and food security.

35. The need for responsible consumption and production is key as the region faces water scarcity and challenges in food and energy supply to meet local demand. This scarcity is aggravated by increased demand due to growing population and changing consumption patterns. The population in North Africa[10] will rise by almost 52% between 2020 and 2050, inducing more pressure on production and consumption in the region and making responsible production and consumption a priority.

[10] The population growth rate in Sudan, Mauritania, and Egypt are expected to reach 94%, 85% and 56%, respectively. In Morocco, Algeria and Libya, the population will increase by more than 24%. Tunisia will be observing the lowest growth rate of population with almost 17%.

36. Economic and social progress in North Africa has been accompanied by environment degradation, endangering the environment, lives, and future development. A. transformative action is needed to ensure sustainable and responsible production and attain a circular economy. The COVID-19 pandemic has offered an opportunity for recovery that would reverse current trends and shift production and consumption patterns toward a more sustainable future. Success will depend on North African governments adopting suitable actions and policies.

37. North Africa has experienced a more than 130% rise of CO2 emissions during 1990 - 2020 (Table 5). This rate is more than double the global rise (53%). Mauritania and Sudan posted the highest CO2 emission growth in the region over this period, while Libya experienced a decline in emissions that reflected the reduced economic activities due to the political crisis.

Table 5. CO2 emissions from fossils fuel growth rate (%), 1990-2020

	CO2 emission annual average			**Total average growth**
	1990-2000	**2000-2010**	**2010-2020**	**1990-2020**
Algeria	7.1%	43.3%	31.6%	102%
Egypt	86.6%	43.1%	6.3%	183.8%
Libya	30.1%	27.7%	-16.37%	38.9%
Mauritania	30.5%	76%	72.3%	295.6%
Morocco	48.9%	63.8%	18.7%	189.4%
Sudan	6.00%	184.8%	31%	295.5%
Tunisia	49.9%	37.8%	3.8%	114.3%
North Africa	43.4%	45%	11.9%	132.7%
World	10.9%	32.1%	4.9%	53%

Source: Global Carbon Project, Our world in Data and UNECA calculations.

38. A successful transition will mean improvements in resource efficiency, It also calls for decoupling environmental degradation from economic growth and doing more with less. In North African countries, higher economic growth, and subsequent increased GDP per capita continue to be closely linked with increased energy consumption and negative environmental impacts such as carbon emissions or air pollution.

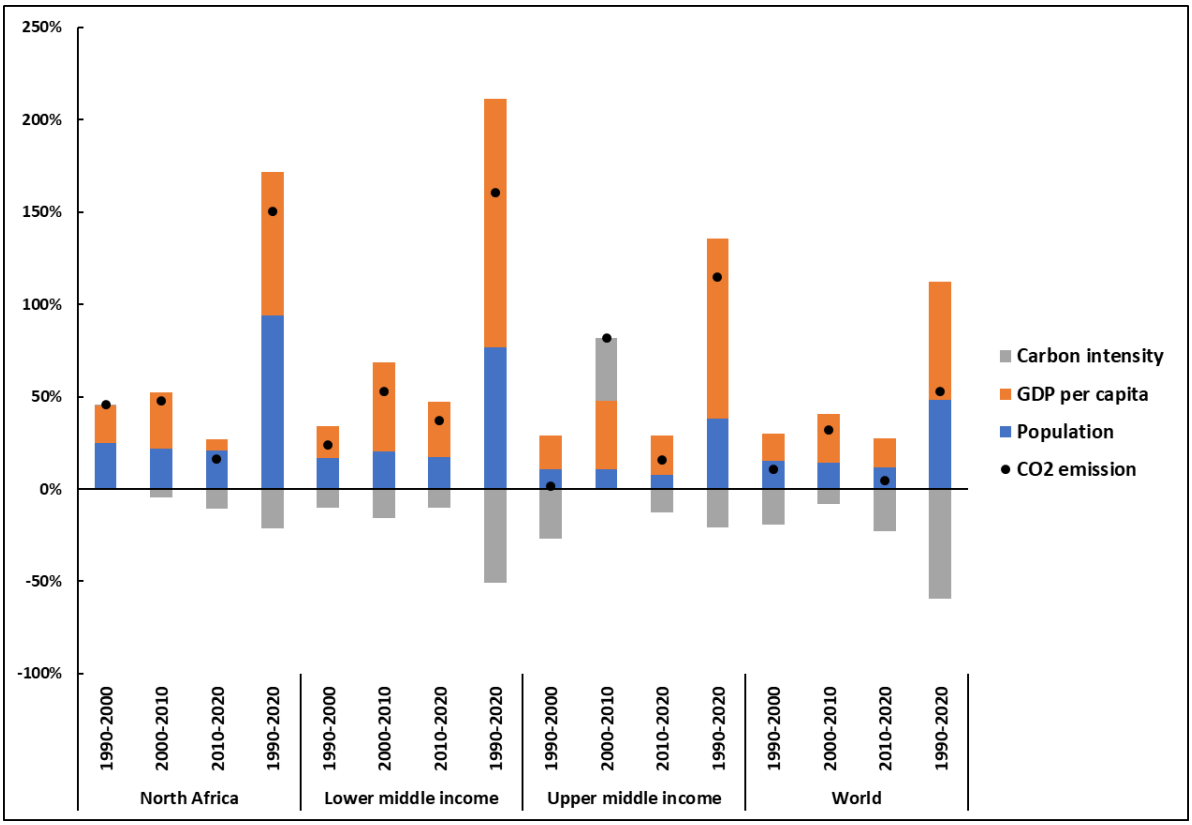
39. According to an analysis by the Brookings Institute[11], North Africa is one of the few regions where even relative decoupling of income growth from carbon (CO2) emissions has not been achieved. In fact, growth of CO2 emissions per capita continues to outpace GDP growth per capita[12]. In contrast to other sub-regions, such as Central Asia, energy intensity of output has remained almost stagnant over the last two decades, due to the limited structural transformation, the constrained institutional capacity and the lack of markets that would attract the necessary investment.

[11]https://www.brookings.edu/blog/future-development/2021/07/22/decoupling-economic-growth-from-emissions-in-the-middle-east-and-north-africa/

[12] At a country level, there are some exceptions to this regional trend, with Tunisia being one of them.

40. Graph 3 highlights the carbon performance and energy use of NACs and the trends of carbon emissions decomposed.[13] It shows that the countries are underperforming in terms of decoupling of emissions and growth. The effects of changes in population were important in the region to changes in carbon emissions over the entire period 1990-2020.

Graph 3: Decomposition of Carbon emission changes 1990-2020, by region.



Source: SRO-NA's calculation using the International Energy Agency & World Bank data.

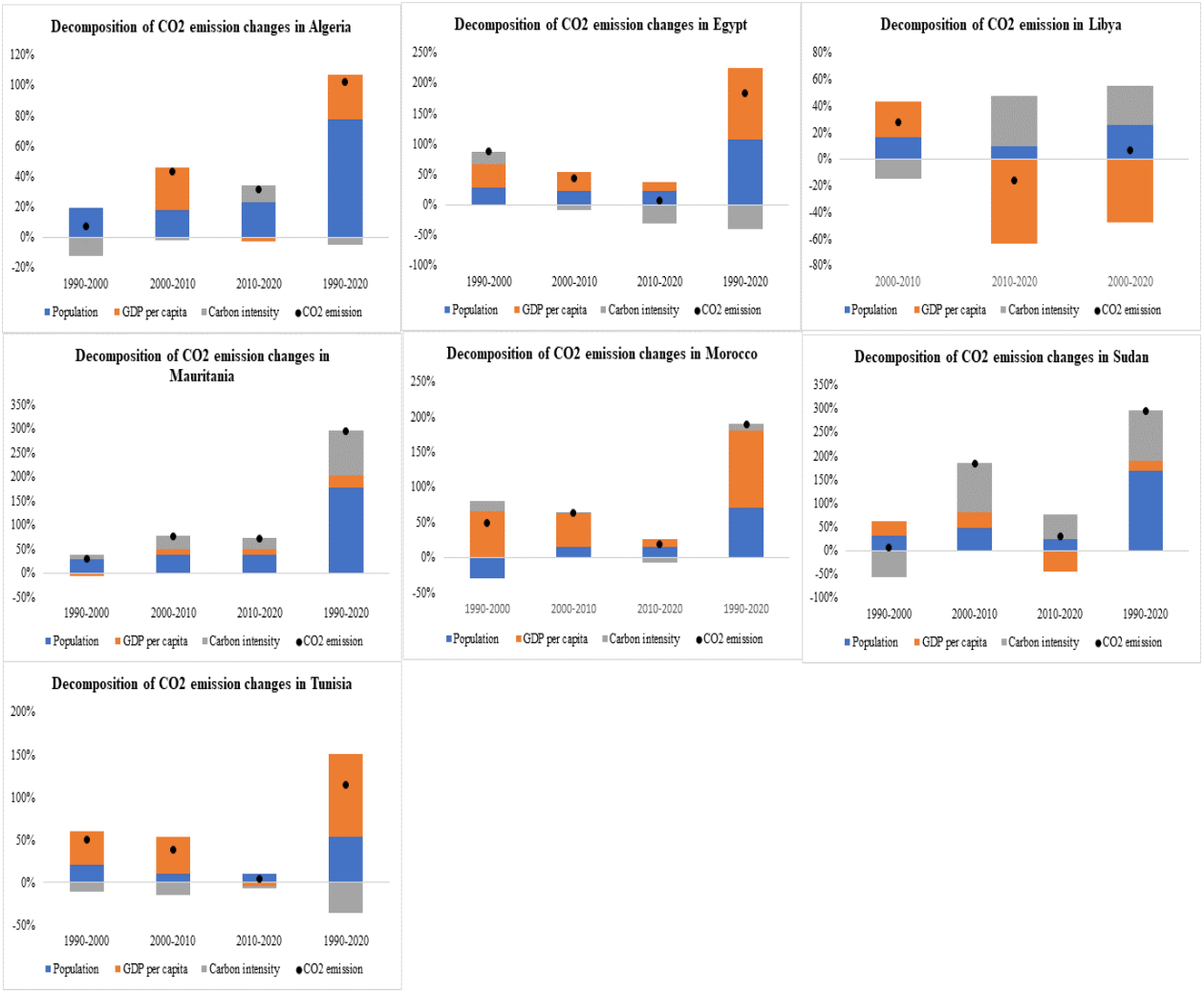
41. The decomposition of emissions for North Africa confirms that the region is not performing well in terms of decoupling of emissions and growth relative to the world and lower middle-income countries' group. From 1990 to 2000 the increase in emissions of 45% in North Africa is mainly determined by a rise in population (25%). From 2000 to 2010, carbon emissions continued to swell due to higher economic growth. Specifically, an increase in economic activity of 30% led to an increase in carbon emissions of about 50%. From 2010 to 2020, the decrease in carbon emissions compared to other periods is explained by a reduced economic activity. The increase in emissions is mainly the result of a rising population. The decomposing of emissions by country into components (Graph 4) confirms the absence of decoupling of emissions and growth and shows that the growth of emissions is mainly explained by the growth of the population. For example, for Algeria, different driving factors over the past two decades are observed.

[13] According to the following equation: C = C/GDP * GDP/Pop * Pop, where C is the Carbon emission of the country, *C/GDP* is the Carbon intensity to GDP (Carbon performance indicator), *GDP/Pop*, the GDP per capita (economic activity of the country) and *Pop*, the population (Size of the country). This will allow for a closer analysis of the Carbon performance factors.

- In the initial period (1990-200), emission declines were accompanied by population growth and were not determined by the collapse in economic activity.
- Between 2000 and 2010, the economy expanded while carbon emissions continued to decline but less fast than GDP. The decoupling of emissions and growth is not really achieved. It corresponds to a relative decoupling of emissions and growth.
- The period 2010-2020 corresponds to a relative decoupling of emissions and growth. Although the improvement in carbon intensity was even faster than in the previous years.

42. The effects of changes in population were high both in Algeria and in the region in general and contributed to an increase in carbon emissions over the entire period. Decoupling of emissions and growth has not occurred. Overall, in the absence of the observed improvements in carbon productivity, the total energy-related carbon emissions in Algeria will increase in the coming years and add important challenge in the environment. This is applicable for all the North African countries in the absence of adequate actions and policies. Structural transition to more service-based economy and with more diversification for oil exporters (Libya and Algeria) would help countries operate such decoupling.

Graph 4: Decomposition of CO2 emission changes in the NAR, by country 1990-2020



Source: SRO-NA's calculation using the International Energy Agency & World Bank data.

2.3. Policy instruments to incentivize sustainable production in North Africa

43. North African countries have embarked on the path of sustainable development since the beginning of 2000 through several laws and regulations as well as strategic measures geared to boost sustainable consumption and production. In addition, as in the rest of the continent, the African 10-Year Framework of Programmes (10YFP) has become the primary framework for SCP development in the region. It identifies four (4) main thematic priority areas: (1) energy, (2) water and sanitation, (3) habitat and sustainable urban development, and (4) industrial development.

44. Since the endorsement of the African 10 YFP, several subregional, national, and local SCP programmes have been developed and implemented. North African countries adopted some SCP policies, initiatives, programmes, and activities. For example:

- At the sub-regional level, the North Africa Energy Efficiency Initiative was developed. It formulates and implements a variety of policies contributing to sustainable development in Egypt, Morocco, and Tunisia,
- The North African countries participate in the Arab States Regional Strategy on SCP, supported by the League of Arab States (LAS), the United Nations Department of Economic and Social Affairs and UNEP. They have held two regional SCP consultations and as a result, they launched their Regional Strategy on SCP in September 2009.
- The Algerian Sustainable Consumption and Production National Action Plan (SCP-NAP) was developed entitled "42 Actions to Develop Sustainable Consumption and Production 2016-2030». This was in addition to the National Strategy for the Environment (SNE), the National Action Plan for Environment and Sustainable Development 2035 (PNAE-DD), and programs for energy transition and development of renewable energies.
- Egypt (Cairo city) was part of the Pilot projects for mainstreaming SCP in national and subnational development policies and plans.
- In Egypt, the government supported sustainable lifestyles and sustainable entrepreneurship through the Smart Start-Up programmes for universities.
- In 2016, Egypt's Ministry of Communications and the Swiss Embassy signed a memorandum of understanding "to support the integration of small- and medium-scale companies in recycling electronic waste.
- Tunisia has approved the National Action Plan on Sustainable Public Procurement in 2022. It has also adopted a national strategy on green economy.

45. It is important to promote social and economic development within the carrying capacity of ecosystems and the de-coupling of economic growth from environmental degradation. The transition towards sustainable and resilient economies in North Africa will ultimately require responsible management of the region’s natural resources. Well-designed national policy frameworks and instruments and their implementation are necessary for the fundamental shift towards sustainable consumption and production patterns.

3. Role of firms, including SMEs, in fulfilling SDG 12

3.1. Firms, including SMEs, and sustainable production

46. In North Africa firms, especially SMEs, represent the main engine of economic activities and job creation and have significant cumulative social and environmental impacts. They comprise an important share of total private sector. In addition, SMEs are considered the backbone of national NACs? and the global supply chains of large companies. Individually, SMEs have relatively small environmental and social impacts, but as a group, the impacts are much bigger than those of large firms. The transition toward a more sustainable and friendly environmental production model is particularly urgent for enterprises, large or SMEs, in the manufacturing sector, which accounts for a large part of the consumption of resources, air and water pollution and generation of waste.

47. The NACs are suffering from unsustainable consumption and production modes that may drive their economies and societies towards the multiple planetary crises - climate change, biodiversity loss, and pollution - in the absence of adequate measures. This will not change only by modifying the behavior or through deeper systemic transformations of the housing, food, mobility, energy, and water systems. It will also need a change in the development model by adopting one where economic growth and development are decoupled from waste generation and pressure on natural resources. It will also rely on integrating this in the educational system of North African countries.

48. The transition toward a more sustainable production model is easier for large firms than SMEs. In fact, SMEs find it more challenging to comply with environmental standards due to factors such as lack of information, lack of access to finance, lack of adaptation of environmental regulations to the social, economic, and technical reality of local businesses and effective possibilities of control bodies, difficulty in recruiting qualified personnel, less awareness about environmental issues, and less environmental pressures from stakeholders[14]. Governments will need to amplify their efforts to reinforce the capacity of SMEs in these areas. To realize SME's potential in the region, governments will need to address market and institutional failures, putting in place policies that lift several SMEs out of their stagnation trap and make them more productive with increased productivity.

49. On a positive side, the COVID-19 pandemic showed that SMEs have the potential to adopt sustainable business practices, be more flexible to adjust their strategy and easily adopt sustainable business practices. When SMEs are well equipped and have the necessary tools, they can become more competitive, cut costs, and optimize operations. In a review of 200 studies on sustainability and corporate performance, Oxford University and Arabesque Partners concluded that 90% of studies in this area found that over medium term high environmental, social and governance (ESG) standards reduced companies' cost of capital, and that 80 percent show a positive correlation between stock price performance and good sustainability practices. It is worth noting that adhering to ESG takes time and that more rapid and efficient actions could be implemented by firms, including SMEs, in the NA region to promote sustainable production. For example:

- Reduce manufacturing impacts by substituting raw materials in products with post-consumer materials through recycling and upcycling. Incentive from Governments will accelerate the process.

[14] DESA policy paper: "MSMEs and their role in achieving the SDGs".

- Significantly reduce waste and ensure that unavoidable waste is utilized to the fullest degree (e.g., organic waste as fuel or fertilizer).
- Reinforce SMEs and help them achieve the potential to adopt environmentally friendly actions in their business practice.
- Promote new business models/solutions for firms and particularly SMEs. Promotion of sustainable practice will offer new or competitive business opportunities for SMEs in several areas: public procurement, consumer information (such as eco-labelling, certification), sustainable tourism, lifestyle education, and food systems.

3.2. Challenges and Opportunities for SMEs and Circular Economy

50. Amid multiple crises, North Africa could achieve inclusive growth, reduce poverty and protect the environment while attaining sustainability through actions directly relevant to Sustainable Consumption and Production. The aim is to provide more people with a better quality of life without undermining the natural resource base and destroying the ecosystems.

51. The implementation of SCP as an integrated approach where both large firms and SMEs contribute will help achieve development plans, reduce future economic, environmental, and social costs, strengthen economic competitiveness, and reduce poverty and unemployment in the region. Governments and different actors of the ecosystem need to consider how to manage the energy, food, and water crises. This will build on the promotion and implementation of a holistic and integrated policies and actions for SCP.

52. The circular economy is relevant to all sectors of the economy. Examples of its successful implementation exist in various countries and sectors, such as the automotive industry, the food industry, the textile industry, the chemical industry, and wastewater management. In this context, SMEs can play a critical role in the logistics of circular businesses and recycling processes in the region. Start-ups and existing SMEs need to be equipped with skills, matched with investors and markets to exploit these opportunities. To optimize the use of the circular economy, firms, and SMEs in the region and all the opportunities along value chains, some policy support will be needed: market access support, access to finance, support in innovation and upskilling of workers, and for investors to better understand and support circular business models. To support SMEs and overcome the challenges, NA governments may support in providing managerial skills to SMEs; provision of basic and necessary infrastructures; strengthening the participation of local SMEs in regional and global value chains (RVCs and GVCs) and ensuring that new investments link to SMEs at all levels of the value chain (suppliers of raw materials; sharing of technology, and access to market). In addition, governments, through their Investment Promotion Agencies, could assist SMEs in building their business skills through provision of trainings and other means to better integrate markets.

53. The COVID-19 and the Russia-Ukraine war offer a good opportunity for NA countries to accelerate the structural transformation and to transit to economies which rely more on renewable energy and consume less energy.

4. Concluding remarks and policy recommendations

54. North African countries are performing modestly against SDG 12 despite efforts and policy actions. Sudan, Morocco, and Egypt are performing slightly better on some indicators. Transforming economies and societies so they become more climate-proof and resilient is necessary to ensure responsible production and consumption. Firms could play a key role in achieving this goal if adequate tools and policy actions exist.

55. The COVID-19 pandemic has posed an unprecedented challenge to NACs, revealing the weaknesses of many aspects of their economic and development models. On the other hand it offers an important opportunity to the region to accelerate the structural transformation and to reshape policies, business practices, investments and consumer choices that are driving production and consumption patterns to create more resilient economies which ensure human well-being and environmental conservation [15]. The aspiration to build forward better from the COVID-19 pandemic offers a unique opportunity to incentivize the shift towards more responsible consumption and production and to accelerate the structural transformation of NA economies. Boosting circular economy and implementing the adequate tools toward more sustainable production model will help to recover better. More specifically, the following policies and actions could play a fundamental role in accelerating the transition to responsible consumption and production:

- Develop coherent and integrated policies, shifting away from current sectoral or stand-alone plans, which reinforce prevailing sectoral silos.
- Develop more Research and Development (R&D) and encourage innovative and new methods to support the transition to circular economy.
- Accelerate efforts to promote green recovery as the part of COVID-19 recovery.
- Ensure the enforcement and implementation of existing policy instruments such as? for sustainable consumption and production.
- Promote structural transformation and reforms that enable the shift from a linear to a circular economy. This could include the introduction of regulations and incentives to support circular economy practices, including to optimize resource inputs, maximize product use, recover by-products and waste, build national capacities to better absorb and replicate clean technologies and integrate resource efficiency and cleaner production in national policies.
- Accelerate the adoption of a carbon market and of economic instruments, including taxes, that encourage more sustainable products, circular business models and circular resource flows.
- Develop more inclusive policies, bringing on board all value chain actors, ensuring that the policies are also culturally sensitive and respect human-rights.
- Improve coordination at national, regional, and international levels to ensure better management of chemicals and waste. Adopt and implement institutional and legal instruments to define the responsibilities of the public and private sector for chemicals and waste control and improve administrative coordination for compliance and enforcement.

56. Accelerate awareness-raising and capacity building on mainstreaming sustainable consumption and production across different sectors and national and sub national policies. The shift to SCP and circular economy is closely connected with the employment agenda. In fact, the priority should therefore be given to planning a transition to circularity which maximizes

[15] UNEP 2019: Global Environment Outlook (GEO-6)

employment and skill development opportunities, ensuring promotion d decent jobs across the entire supply chain. Also, there will be a need to enhance skills development to take advantage of new employment opportunities in the circular economy.

57. SMEs are critical and it is important to facilitate their engagement in the transition to circularity, recognizing their importance for the economy and job creation in NACs. This requires the development of a crosscutting strategy that touches upon many areas: ability of governments to implement sound macroeconomic policies, capability of stakeholders to develop conducive microeconomic business environments through simplified legal and regulatory frameworks, good governance, accessible finance, suitable infrastructure, supportive education, sufficiently healthy and flexibly skilled labour as well as efficient public and private institutions, and the ability of SMEs to implement competitive operating practices and business strategies. SME development strategy must be integrated also in the national development strategy in NACs.

58. NACs need to increase awareness and education on sustainable development as a basis for engagement and collaboration particularly with children and young people. Shifting towards more sustainable habits in daily consumption in workplaces, schools and homes can promote sustainable consumption and production processes. Digital transformation, including through dematerialization, will provide opportunities to accelerate progress towards SDG12.

References

- African Development Bank (2020): Sustainable Public Procurement, guidance Note.
- Algérie Rapport National Volontaire 2019 : Progression de la mise en œuvre des Objectifs de Développement Durable.
- Crippa, M., Guizzardi, D., Muntean, M., Schaaf, E., Solazzo, E., Monforti-Ferrario, F., Olivier, J.G.J., Vignati, E., Fossil CO2 emissions of all world countries - 2020 Report, EUR 30358 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-21515-8doi:10.2760/143674, JRC121460.
- Diaco, M.; Alami Merrouni, M.; Bougarrani, S. (2020) Circular economy in the Africa-EU cooperation - Country report for Morocco. Country report under EC Contract ENV.F.2./ETU/2018/004 Project: " "Circular Economy in Africa-Eu cooperation", Trinomics B.V., ACEN, adelphi Consult GmbH and Cambridge Econometrics Ltd.
- Egypt, The Ministry of Planning and Economic Development, Egypt's 2021 Voluntary National Review, Report.
- European Parliament (2020): Report on the New Circular Economy Action Plan.
- European Bank for Reconstruction and Development (EBRD): The Low Carbon Transition, Special Report on climate change
- International Energy Agency (IEA) (2020): Clean Energy Transition in North Africa, Report.
- Jeffrey D. Sachs, Guillaume Lafortune, Christian Kroll, Grayson Fuller, and Finn Woelm: The SDG Report 2022: From Crisis to Sustainable Development: the SDGs as Roadmap to 2030 and beyond, Cambridge University Press.
- Libya, 2020 Voluntary National Review, Report.
- Maroc : Examen National volontaire de la mise en œuvre des Objectifs de Développement Durable, 2020.
- Netherlands Enterprise Agency (2020): Circular Economy & SDGs How circular economy practices help to achieve the Sustainable Development Goals, Report.
- Sachs, J., Lafortune, G., Kroll, C., Fuller, G., Woelm, F., (2022). From Crisis to Sustainable Development: the SDGs as Roadmap to 2030 and Beyond. Sustainable Development Report 2022. Cambridge: Cambridge University Press.
- République Islamique de Mauritanie, Revue Nationale Volontaire 2020.
- Sudan, Voluntary national review 2018 implementation of agenda 2030 and the SDGs for peace and development in the Sudan.
- The Africa SDGs Progress Dashboard, 2022.
- The Sustainable Development Goals Center for Africa and Sustainable Development Solutions Network (2020): Africa SDG Index and Dashboards Report 2020. Kigali and New York: SDG Center for Africa and Sustainable Development Solutions Network.
- Tunisie, Rapport national volontaire sur la mise en œuvre des objectifs de développement durable en Tunisie 2021.
- United Nations Environment Programme (UNEP) 2019: Global Environment Outlook (GEO-6)
- UNECA (2019): Implementation of the 2030 Agenda and Agenda 2063 in North African countries, Report.
- United Nations, Economic and Social Council (2022): Progress towards the Sustainable Development Goals, Report of the Secretary-General, High-level political forum on sustainable development.
- United Nations Economic and Social Commission for Western Asia (UNESCWA), Arab Sustainable Development Report 2020.