North Africa Economic Outlook 2022

Supporting Climate Resilience and a Just Energy Transition

GROUPE DE LA BANQUE AFRICAINE DE DÉVELOPPEMENT
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AfDB	African Development Bank
AEO	African Economic Outlook
AFD	Agence Française de Développement
AMMC	Autorité Marocaine du Marché des Capitaux
ANSADE	Agence Nationale de la Statistique et de l'Analyse Démographique et Economique
ARC	African Risk Capacity
°C	Degrees Celsius
CAT	Climate Action Tracker
CBE	Central Bank of Egypt
CBI	Climate Bonds Initiative
CFU	Climate Funds Update
CIF	Climate Investment Fund
COP	Conference of the Parties
COVID-19	Coronavirus Disease 2019
CPI	Climate Policy Initiative
CRI	Climate Resilience Index
CSP	Concentrated Solar Power
CTF	Clean Technology Fund
EBRD	European Bank for Reconstruction and Development
ESG	Environmental, Social and Governance
EUR	Euro
EV	Electric Vehicles
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FY	Fiscal Year
GCA	Global Commission on Adaptation
GCF	Green Climate Fund
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction and Recovery
GtCO2 eq	Gigatons of carbon dioxide equivalent
GWh	Gigawatt hours
IBRD	International Bank for Reconstruction and Development
IEA	International Energy Agency
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IISD	International Institute for Sustainable Development

ILO	International Labor Organization
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
IRENA	International Renewable Energy Agency
MAD	Moroccan Dirham
MASEN	Moroccan Agency of Sustainable Energy
MDB	Multilateral Development Bank
MENA	Middle East and North Africa
MW	Megawatts
n.d	no date
NDC	Nationally Determined Contribution
NGFS	Network for Greening the Financial System
NRGI	Natural Resource Governance Institute
OCHA	Office for the Coordination of Humanitarian Affairs
OECD	Organisation for Economic Co-operation and Development
PPA	Power Purchase Agreement
PPP	Public Private Partnership
RCP	Representative Concentration Pathway
RST	Resilience and Sustainability Trust fund
SDG	Sustainable Development Goal
SDRs	Special Drawing Rights
SME	Small and Medium Enterprise
TCFD	Task Force for Climate Related Financial Disclosures
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
WRI	World Resources Institute

EXECUTIVE SUMMARY

In 2021, North Africa showed strong signs of recovery from a downturn in 2020 due to the global pandemic and concomitant oil price collapse. The policy responses of governments helped mitigate the effect of these exogenous shocks, leading to a 3.9 percent real gross domestic product (GDP) growth rate in the North region (excluding Libya), below the 2021 growth rate for Africa (4.2 percent excluding Libya). However, if Libya, with an impressive economic growth of 177.3 percent in 2021 is included, North Africa's economic growth (11.7 percent) becomes the largest on the continent. Macroeconomic policies remained largely expansionary in North Africa to support the post-COVID-19 crisis recovery in 2021. Governments in the region undertook various fiscal measures to protect populations, Small and Medium Enterprises (SMEs) and, economic activity. Consequently, the average regional fiscal deficit in 2021 remained one of the highest in Africa at 5.4 percent of GDP (6.2 percent of GDP excluding Libya). On the monetary policy side, a subdued inflation (4.6 percent as compared to 13 percent on average in Africa) allowed central banks to provide liquidity for the financial system to accompany the recovery (interest rates and reserves ratios remained at low levels). Despite the resumption of trade and improved remittance inflows, the current account deficit was one of the highest in Africa at 4.1 percent in 2021, against an average of 2.4 percent for the continent. Macroeconomic prospects for the region are favorable, with real GDP growth rates (4.5 percent in 2022 and 4.2 percent in 2023) slightly above Africa's average (4.1 percent in 2022 and 2023). Other macroeconomic projections indicate that North Africa's inflation would follow the increasing global trend but remain subdued at 6.7 percent in 2022 and 6.4 percent in 2023. Between 2021 and 2022, fiscal deficits improved at the regional level (from 5.4 percent of GDP in 2021 to an estimate of 3.2 percent of GDP in 2022) and in all North African countries apart from Mauritania and Tunisia. High energy and food prices are expected to weigh on fiscal expenditures in countries where these products are highly subsidized (Algeria, Libya, Tunisia). Current account balances are projected to improve in oil exporting countries and to deteriorate in others. Food and energy bills are expected to increase imports while exports for manufacturing products and tourism are expected to increase slowly. The regional current account deficit is estimated at 2.2 percent of GDP in 2022 and 2.5 percent of GDP in 2023.

North Africa's macroeconomic outlook is, however, subject to risks including the emergence of new COVID-19 variants, the spillover effects of the Russia-Ukraine conflict, and tightening of global financial conditions due to policy rate increases in advanced economies. The Ukraine-Russia crisis presents considerable uncertainty for North Africa given the region's geographical proximity and tight economic links with Europe. As a net food importer of wheat, corn, and oil from Russia and Ukraine, North Africa may face food insecurity. In contrast, fossil fuel exporters could benefit from increased demand for oil and gas as European countries divest away from Russia. However, such a response to ramp up fossil fuel production and exports challenges the commitments countries have made under the Paris Agreement - the international treaty on climate change adopted in 2015.

The Ukraine-Russia crisis has, however, also highlighted the urgency to move from hydrocarbon dependence to renewable energy and rationalizing energy consumption. North African countries are still highly dependent on fossil energy as the

region represents an important oil and gas producing area in the world. Mean and seasonal temperatures in North Africa have increased at twice the global rate, rainfall has become more variable, and water scarcer. These adverse impacts are predicted to get worse as globally countries fall short of their national targets and a collective target of stabilizing global temperatures to within 1.5° Celsius of warming. Agricultural and fisheries production as well as health and mortality will decline in North Africa as temperatures continue to rise. Ecosystems and cultural heritage will suffer losses. Transitioning the energy sector from one resource base to another - namely from fossil-based to renewable-based – is central to mitigating the impact of climate change.

North Africa will be in the spotlight as Egypt takes over the Presidency of the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP27) in November 2022. COP27 must follow up on the COP26 call for more ambitious climate change mitigation targets. Despite significant renewable energy potential, largely in the form of solar and wind energy, North Africa's energy mix remains strongly dominated by coal, oil and gas as fossil resources have long been a central element in the economic growth for North African countries, notably Algeria, Libya, and Egypt. Management of fossil fuel resources and their global price fluctuations are, however, leading to increasing burdens on public expenditure where they are highly subsidized (Algeria, Libya, and Tunisia). They are also leading to longer-term risks and contingent liabilities. Finance is a critical lever to meet the scale and necessary pace of the low-emission, climate resilient sectoral and societal transition needed in North Africa. The available finance for climate action, however, falls short of the estimated needs for transitions.

Several recommendations stem from analysis of the macroeconomic performance of the region, considering the financing needs to transition to low-emission, climate resilient development pathways, both in the short-term and in the medium to long-term.

Near-term policy recommendations to protect people, economic growth, and stability:

- **Protecting lives and livelihoods through social safety net measures for vulnerable households**

North Africa needs to consider measures to maintain welfare and counteract inflationary forces which reduce consumer purchasing power and increase poverty and inequalities in the region. Despite fiscal space constraints, public social safety net programs such as cash transfers are an important tool at hand, especially for the poorest populations providing a buffer against the negative impact on household consumption.

- **Enhancing preparedness plans against future resurgence of health shocks**

Keeping the COVID-19 pandemic under control should remain a top policy priority for North African countries. Governments should build preparedness for timely detection and treatment of the coronavirus or other pandemics through additional investment in their domestic pharmaceutical industries and healthcare systems. They should also closely monitor the situation by establishing an organization to take charge of this responsibility such as Tunisia's National Observatory of New and Emerging Diseases. North African governments could also consider universal health insurance to reduce government spending.

- **Supporting private sector development through increased competitiveness and access to finance**

Private sector and small and medium enterprises (SMEs) are the main job providers in North Africa, but they have suffered from several external shocks over the past two years, including the COVID-19 pandemic and from the recent increases in oil and commodity prices which followed the Russia-Ukraine conflict. High prices have affected transport cost and inputs, undermining further countries' competitiveness. It becomes urgent to protect SMEs and job creation, notably through fiscal incentives, direct financial support, and increased access to finance. There is also a need to improve the business environment and provide adequately skilled labor to stimulate private sector growth. Investments in digitalization, human capital, and in science, technology, engineering, and mathematics and problem-solving skills will trigger the adoption of new technologies required for high value manufacturing and economic diversification.

- **Undertaking priority structural reforms to enhance resilience to external shocks**

In the current context of high metal and oil prices, North African economies should seize the opportunity to initiate structural reforms which – if designed well – could be implemented without significant social repercussions. Libya could benefit from the expected huge revenue to launch reconstruction and development of modern strategic infrastructure projects. Countries should identify key reforms to enhance resilience to external shocks, widen fiscal space, reinforce the banking sector, and promote export.

- **Strengthening coordination among fiscal, monetary, and exchange rate policies to closely monitor the direction, speed, and magnitude of capital flows and their effects.**

Over the past decade some North African economies have relied heavily on private creditors, mainly Eurobond and commercial sources, to finance their budget and current account deficits. As a result, their debt burdens have become highly sensitive to interest and exchange rate movements and the risk of balance of payments crises has increased.

- **Using debt efficiently to finance productive investment and accelerate economic recovery**

North African governments should address the rising public debt levels by allocating debt money transparently, enhance public finance management and accelerate domestic resource mobilization. It also means restructuring state-owned enterprises in difficult situations and conducting regular public expenditure reviews.

Medium- and long-term policy recommendations for strong, sustainable, and inclusive growth:

- **Investing in agriculture productivity and food security**

Maintaining and supporting food security in the region remains a crucial objective. Adoption and diffusion of existing climate resilient agricultural technologies in the form of new improved varieties of staple crops and better water and soil management strategies, are of paramount importance to support agricultural productivity in the short and medium term. These adoptions allow agricultural systems to be more resilient to climatic shocks and keep productivity preventing crop failure and shortages and related short term price spikes.

- **Gradually reducing hydrocarbon dependence by investing continuously in renewable energy capacity**

The winding down of fossil energy must be accompanied by a rapid increase in renewable energy capacity and production in North Africa. While the installed capacity of renewable energy has increased significantly in the last 10 years, fossil fuel capacity still dominates in all North African countries. Countries should invest further in renewable energy capacity (solar and wind power) so that the rate of investment in new renewable capacity is close to that of fossil fuels to balance the energy portfolio mix in the medium term.

- **Exploiting the opportunities provided by a demand for energy in Europe and the rest of the world to increase export capacity**

There are important opportunities for North Africa to become the future energy leader. North Africa can employ its vast solar energy resources to produce renewable (green) hydrogen that can be transported (by pipelines or shipping) to Europe. Focusing on the Nigeria-Niger-Algeria gas pipeline, the West African gas pipeline extension to Morocco, and other additional possibilities for exporting gas to the European Union, would be strategic for the North African region.

- **Investing profits from fossil fuels into economic activities not correlated with commodities to build resilient economies**

In the future, profits from fossil fuels are likely to be a relevant component for some of the regional economies. It is of paramount importance to use at least part of this income stream to increase capacity in non-renewable energy and to invest in economic sectors that are not directly related to the fossil fuel industry such as investment in new technologies, digitalization, pharmaceuticals, education, and human capital. Each country in the region should pursue a diversification plan with a clear timeline. The climate resilience of economies further supports macroeconomic performance where it limits GDP losses due to the adverse effects of climate change and policy-led transitions.

- **Reforming inefficient fossil fuel subsidies**

North African countries are among the top countries ranked for the value of their fossil fuel subsidies. Fossil fuel subsidies have come under increasing scrutiny given the urgency with which the climate crisis must be addressed. Egypt, Morocco, and Tunisia have all acted to phase out fossil fuel subsidies. In all countries, it has been clear that reform needs to be carefully managed to take care of those that rely most heavily on subsidies for their welfare. Reducing fossil fuel subsidies will stabilize government revenues, especially in times of oil price volatility, but also liberate resources for priority public investments.

- **Removing barriers to further support investment in renewables, accelerate the transition and create jobs**

There are barriers to financing the transition to renewable energy sources that need to be overcome. These include perceived and real technology risks, high transaction costs, but also those imposed by a macroeconomic situation of the high cost of and limited access to capital. Using all government levers concurrently to mobilize investment is required. This includes using public finance well to de-risk private investment in climate change, not only including through public private partnerships (PPPs), but also through increasing access to and use of international climate finance. It also calls for fiscal policy reforms and promotion through subsidies and taxes (including exemptions), public investment and public

procurement, and developing and depending on markets for sovereign and non-sovereign, green bonds. Such actions extend beyond mitigation roles to adaptation to climate change, particularly in the case of agriculture and water investment and government support.

- **Mobilizing climate finance in North Africa and facilitating climate action**

There is a need to harmonize methods and timeframes to assess financing needs for climate action and allow for comparison across countries. Well defined costs and targets are necessary to mobilize climate finance in North Africa. High quality targets and pathways play a role in investor certainty, while high quality policy measures will be critical for the eligibility of emerging sources of finance, such as the Resilience and Sustainability Trust fund (RST) of the International Monetary Fund (IMF). Financial policy and regulation should guide financial flows towards climate action. More can be done, however, to learn and operationalize options for macro and micro-prudential regulation and monetary policy to accelerate finance towards energy transitions and climate resilience. Political will should be mobilized.

CHAPTER 1

NORTH AFRICA'S ECONOMIC PERFORMANCE AND OUTLOOK

Key Messages

- **North Africa has registered important economic recovery in the wake of the COVID-19 pandemic.** After an economic recession of 0.3 percent in 2020 (excluding Libya), the North Africa region rebounded in 2021 with a regional GDP growth averaging 3.9 percent. If Libya, with an impressive economic growth of 177.3 percent in 2021, is included, North Africa's economic growth (11.7 percent) becomes the largest on the continent.

- **Macroeconomic fundamentals have generally improved in 2021.** The regional fiscal deficit narrowed significantly from 9 percent of GDP in 2020 to 5.4 percent of GDP in 2021 but remained high in Egypt, Morocco, and Tunisia. North Africa's fiscal policies remained accommodative in 2021 to boost economic recovery. Despite expansionary monetary policies, inflation remained subdued in North Africa, increasing slightly from 4.3 percent in 2020 to 4.6 percent 2021. External accounts improved in oil exporting countries (Algeria and Libya) and deteriorated or stagnated in other North African countries. At the regional level, the current account deficit shrunk from 5.6 percent of GDP in 2020 to 4.1 percent in 2021.

- **Public debts, including indebtedness of state-owned enterprises, are on the high side in North Africa.** The Special Drawing Rights (SDRs) allocation to North Africa (USD 9.7 billion), effective on August 23rd, 2021, has been a breath of fresh air for North African economies, but growth financing needs remain high in the region. Apart from debt disbursements and remittances received, other financial flows to North Africa (foreign direct investment) have been declining in recent years, exacerbated by the COVID-19 pandemic.

- **Macroeconomic Prospects in North Africa remains positive.** The region is projected to grow by 4.5 percent in 2022 and 4.2 percent in 2023 with disparities across countries. Rising global food and energy prices are expected to drive average inflation in the region up from 4.6 percent in 2021 to 6.7 percent in 2022 and 6.4 percent in 2023. Fiscal balances are expected to improve in the region from -5.4 percent of GDP in 2021 to -3.2 percent of GDP by end 2022 although food and energy subsidies would weigh on fiscal expenditures. Current account balance projections depend on whether the country is a net oil exporter or not. The regional current account deficit is estimated at 2.2 percent of GDP in 2022 and projected to be 2.5 percent of GDP in 2023, reflecting higher imports bills relative to export receipts.

- **The macroeconomic outlook for North Africa is however subject to risks**, including the emergence of new COVID-19 variants and the spillover effects from the Russia-Ukraine conflict. Commodity prices have skyrocketed since the start of Russia-Ukraine conflict in February 2022, adding additional risk to the global recovery and jeopardizing North Africa's access to cereals imports and favorable conditions in international capital markets.

The Russia-Ukraine conflict is expected to have important negative impacts on North African economies, especially for net commodity importers.

1.1 RECENT SOCIO-ECONOMIC DEVELOPMENTS IN NORTH AFRICA

1.1.1 Overview of recent developments

North Africa's real gross domestic product (GDP) recovered strongly in 2021, expanding by 3.9 percent (excluding Libya) or 11.7 percent (including Libya), after the significant shock in 2020 caused by the COVID-19 pandemic and concomitant oil price collapse. This resulted in a 1.3 percent reduction in real GDP for the region. The strong economic recovery in 2021 is largely attributed to the policy measures implemented including fiscal stimulus and accommodative monetary policy that governments in the region undertook to mitigate the impact of those exogenous shocks and protect populations, SMEs, and economic activities. On the monetary policy side, central banks ensured adequate liquidity in the financial system to support the recovery. Current accounts improved with the gradual resumption of trade and remittance inflows. The continuing recovery prospects are however marred by the uncertainty brought about by the persistence of the COVID-19 pandemic and the fallout from the Russia-Ukraine war. Many countries in the region are net food importers (notably wheat) and will be the hardest hit by the war in Ukraine. Rising food and commodity prices in the current context of uncertainty lead to significant inflationary pressures that have negative consequences in terms of reduced consumer purchasing power and welfare, and further increasing poverty. The impact of these inflationary forces can be mitigated by government interventions in the form of income support measures and subsidies. The increase in prices and demand for oil and gas, on the other hand, has a positive impact for some of the oil-exporting economies of the region at the expense of the implementation of pathways to decarbonize the economy. Overall, the uncertainty brought about by the Ukraine war will dampen the speed of the post-COVID-19 recovery and will have important implications on the diversification of the energy mix and transition. The remainder of this chapter will cover the recent macroeconomic developments in North Africa, including discussions on real GDP performance, inflation, fiscal positions, current account positions and exchange rates. In addition, it will also cover other socio-economic developments, including labor and employment changes and poverty.

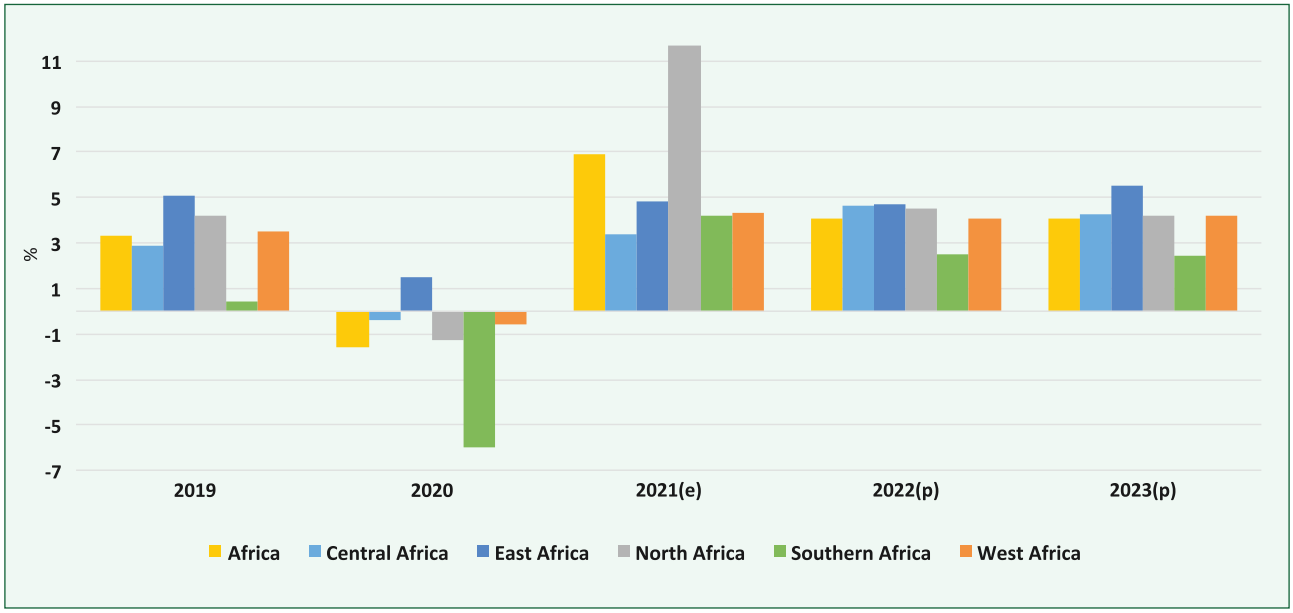
1.1.2 North Africa has registered important economic recovery in the wake of the COVID-19 crisis

Prior to the COVID-19 pandemic and other exogenous shocks experienced in 2020 such as climate change, contractions in the region's main European trade partners and Libya's intensification of the conflict, North Africa was in a favorable economic position, with annual GDP growth averaging 3.4 percent in 2013-19 (Figure 1.1). North Africa's output loss in 2020 was relatively low compared to most other African regions (1.3 percent decline in GDP and 0.3 percent decline excluding Libya) due to governments' prompt and bold interventions. Remarkably, Egypt has been an exception in the North Africa region, displaying a positive GDP growth rate even during the pandemic[1] (Figure 1.2), largely driven by its large domestic market and household consumption. In 2021, the recovery was good with a regional GDP growth averaging 3.9 percent (excluding Libya) but below Africa's growth (4.2 percent excluding Libya). If Libya, with an impressive economic growth of 177.3 percent in 2021 is included, North Africa's economic growth (11.7 percent) becomes the largest on the continent. With Libya included, North Africa's economic performance surpassed any other region in world in 2021. For instance, according to the Inter-national Monetary Fund (IMF 2022), emerging economies grew by 6.8 percent in 2021 (7.3 percent for emerging and developing Asia and 6.8 percent for Latin

[1] Regarding Egypt, comparison with other North African countries is difficult as the macroeconomic indicators are provided in fiscal years, running from July 1 to June 30.

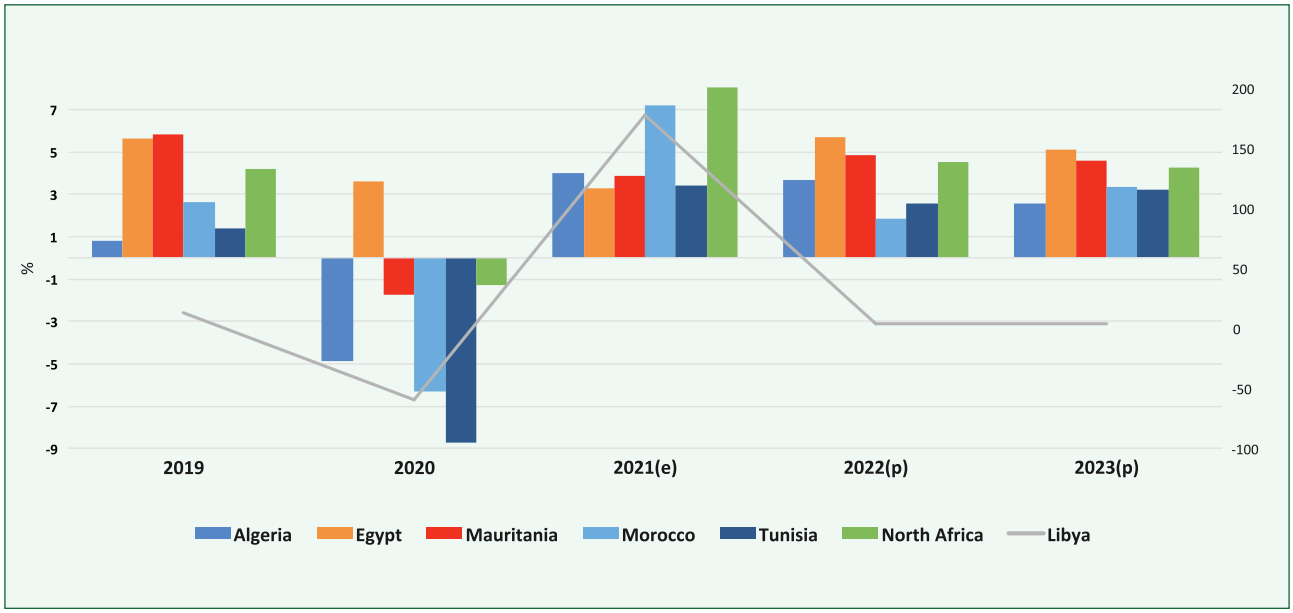
America and Caribbean). All North African countries displayed significant GDP growth rates in 2021 (Figure 1.2), largely related to a low base effect (compensation from the 2020 economic recessions). This performance has been also driven by the uptick in commodity prices as well as the recovery of trade and industrial activities, facilitated by the ease of COVID-19 restrictions. Growth performances and key drivers during 2021 vary significantly across countries. The remainder of this section reviews the individual country performances following the 2020 shocks.

Figure 1.1: Real GDP growth rates in North Africa and other African regions, 2019-23



Source: African Development Bank (AfDB) statistics.
Note: Data are estimates for 2021 and projections for 2022–23.

Figure 1.2: Real GDP growth, by country, 2019-23



Source AfDB statistics.
Note: Libya, an outlier, is shown on the right Y axis. Data are estimates for 2021 and projections for 2022–23.

1.1.3 Growth performances in 2021 vary significantly across countries

Natural resource-rich countries (Algeria, Libya, and Mauritania) registered strong growth performances in 2021. These countries benefited from an increase in global demand and commodity prices. In 2021, Algeria showed important signs of recovery with real GDP increasing by 4.0 percent, up from a contraction of 4.9 percent in 2020. This recovery benefited from the end of the lockdown measures, and the increase in internal demand as well as in the price of fossil fuels. The production of fossil fuels jumped by 9.4 percent in 2021 after the contractions of 10.2 percent in 2020. The other, non-energy related, sectors also displayed a rebound although much more modest (2 percent). Similarly, the positive fossil fuels price shock coupled with the easing of political tensions and the attendant lifting of the oil exports blockade in late 2020 supported Libya's recovery, boosted by a significant increase in the production of hydrocarbons in 2021. The economy of Libya is estimated to have grown by a whopping 177.3 percent in 2021 compared to a massive contraction of 59.7 percent in 2020, partly reflecting a base effect. Oil production in Libya rose to over 1.2 million barrels per day (mb/d) in 2021, compared to 0.4 mb/d in 2020. On the demand side, investment and household consumption also aided growth in these countries. For instance, increased global demand for metals and agriculture and services drove Mauritania's real GDP growth, estimated at 3.9 percent in 2021 after an economic recession (-1.8 percent) in 2020. This growth performance also benefited from the lifting of emergency COVID-19 measures aimed at curbing the spread of pandemic and the financial assistance from international donors. Not only the agriculture and fishing sectors, but also the service sector registered good performances. The government continues to focus on the development of infra-structures, in particular transport, energy, and information and communication technologies. Diversification is a major development challenge, as the country remains highly dependent on international prices and production of iron, gold, and copper ores.

In diversified economies (Egypt, Morocco, and Tunisia), tourism remained low but growth performances were good, especially in Morocco.

Egypt's economic growth decelerated from 3.6 percent in Fiscal Year (FY) 2019-20 to 3.3 percent in FY2020-21. In FY2020-21, on the supply side, growth was driven by good performance in construction, communication, and agriculture sectors. In contrast, tourism and manufacturing remained subdued by COVID-19 related measures, recording negative performances. On the demand side, growth was driven by private consumption, which grew by 7.1 percent in FY2020-21. Exports and exceptional agricultural performance boosted Morocco's recovery whilst the tourism sector performed below pre-COVID-19 levels. In 2021, the economy rebounded with real GDP growth rate of 7.2 percent, following the 2020 sharp recession (-6.3 percent in 2020). The 2021 recovery was due to the good performance of the export sector and an exceptional 2020-21 agricultural season. The tourism sector which accounted for 17 percent of exports and 6.5 percent of GDP in 2019 has been particularly affected by COVID-19-related travel restrictions. With the onset of the pandemic, tourist arrivals plummeted by 71.2 percent between 2019 and the end of 2021 but are up 34 percent from 2020. Consumption and investment rebounded in 2021. The recovery in Tunisia was driven by manufacturing and services. The global pandemic shock in 2020 caused a significant recession in Tunisia with a reduction in GDP by 8.7 percent. 2021 witnessed an important recovery with a 3.4 percent GDP growth. The recovery has been attributed to improved performance of the industrial and service sector which favored an increase in exports. Aggregate demand rebounded due in part to a 24.5 percent increase in private investment, after a 26.8 percent reduction in 2020.

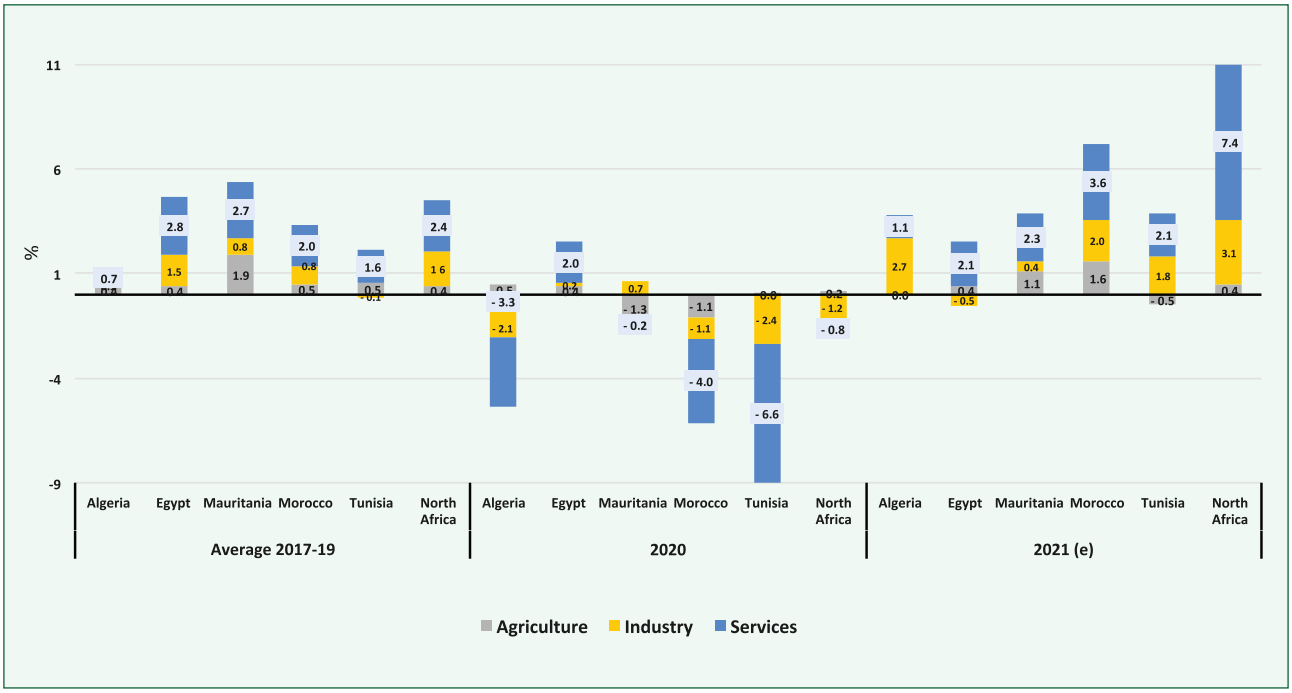
1.1.4 Demand-side and sectoral decomposition of growth: The service sector and private consumption drove growth in North Africa

The importance of the service sector on the supply side

In 2021, the service sector had the largest contribution to regional GDP (52.3 percent) followed by industry (35.5 percent) and agriculture (12.2 percent). As compared to the pre-crisis period (2017-19), the service sector has increased its share over time, from 50.6 percent in 2017-19 to 52.3 percent in 2021. In 2021, the service sector was the main contributor to GDP in Algeria (46.9 percent), Egypt (54 percent), Morocco (more than 57 percent), Mauritania (47.8 percent of GDP) and Tunisia (a 64.4 percent share). In contrast to other North African countries, in 2021 Libya's GDP was largely dominated by industrial activities. In the last five years this sector has consistently contributed to about 78 percent of the GDP while services have maintained a 20-21 percent share.

At regional level, economic recovery in 2021 has been driven mainly by the service sector and to a lesser extent by industry and agriculture (Figure 1.3). The decomposition of GDP growth in 2021 shows the significant contribution of the service (7.4 percent) and industry (3.1 percent) sectors in North Africa. It is only in Algeria that the contribution of the industry sector (2.7 percent) to the growth of GDP was higher than the one of the service sector (1.1 percent). Agriculture was an important driver for 2021 growth in both Mauritania and Morocco, while it contributed negatively to GDP growth in Tunisia.

Figure 1.3: Sector contributions to GDP growth in North Africa by country

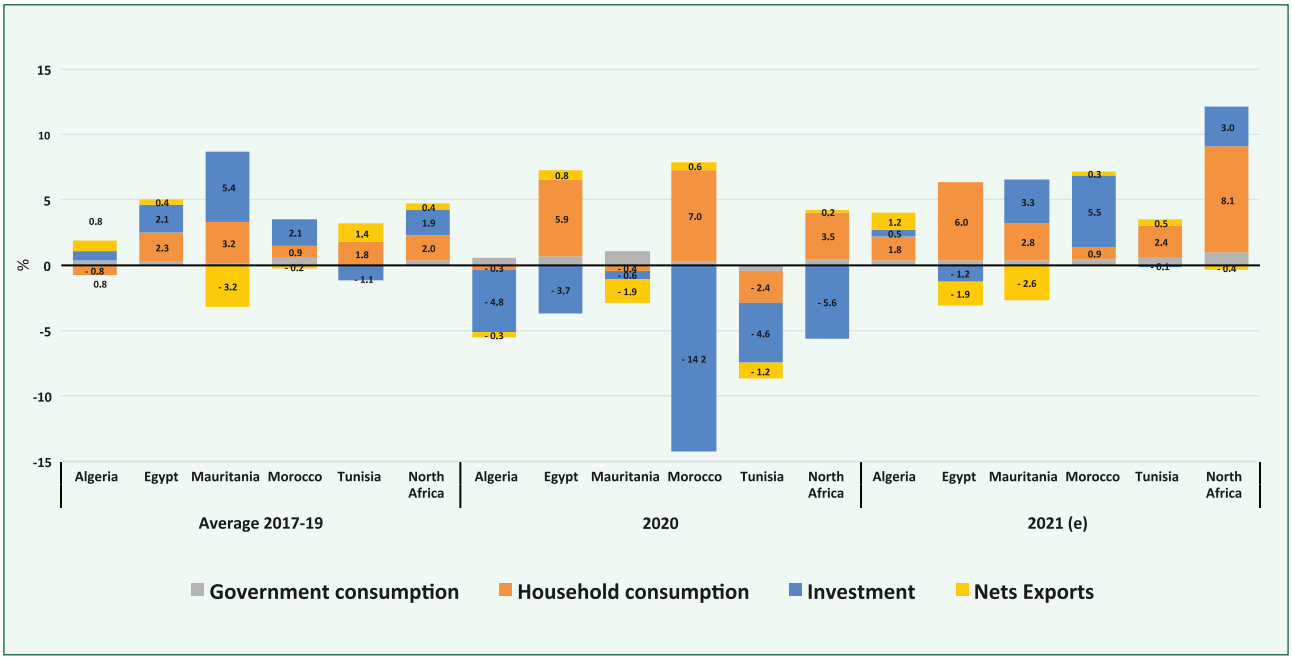


Source: AfDB statistics.
Notes: Calculation is based on the nominal GDP at basic price.
For Libya, in 2021, the contributions to GDP growth were as follows: Agriculture (0.5 percent), Industry (54.9 percent) and Services (121.8 percent).

On the demand side, recovery in household consumption expenditure drove GDP growth in 2021

North Africa's household consumption contributed to 8.1 percent of GDP growth in 2021, followed by investment (3 percent) and government consumption (0.9 percent) (Figure 1.4). During the pandemic in 2020, Egyptian household consumption contributed remarkably to a GDP growth of 5.9 percent and maintained the trend at 6 percent in 2021. In Libya, household consumption expenditure strongly rebounded after the pandemic, from a contribution to growth of -32.2 percent in 2020 to 92.1 percent in 2021. Investment was a major contributor to Morocco's growth (5.5 percent) after a stark decline in 2020. Similar patterns were observed in Libya and Mauritania. The contribution of government consumption expenditure in 2021 was marginal except for Libya (12.8 percent contribution). Net exports contributed 8.3 percent to growth in Libya, and 1.2 percent in Algeria. Net exports contributed only slightly to GDP growth in Morocco and Tunisia (0.3 and 0.5 percent respectively) and negatively in Mauritania (-2.6 percent) and Egypt (-1.9 percent).

Figure 1.4: Demand-side contributions to GDP growth in North Africa by country



Source: AfDB statistics.

Notes: Calculation is based on GDP growth at market prices. For Libya, in 2021, contributions to GDP were as follows: government consumption (12.8 percent), household consumption (92.1 percent), Investment (64.2 percent) and net exports (8.3 percent).

1.1.5 North Africa's fiscal policies remained accommodative in 2021 to boost economic recovery

In North Africa, the fiscal deficit narrowed significantly from 9 percent of GDP in 2020 to 5.4 percent in 2021, including the large fiscal surplus of 13.8 percent of GDP in Libya (Figure 1.5). The resumption of economic activities helped the increase in fiscal revenues but were not enough to offset high health and social expenditures in the region to mitigate the impact of the 2020 crisis.

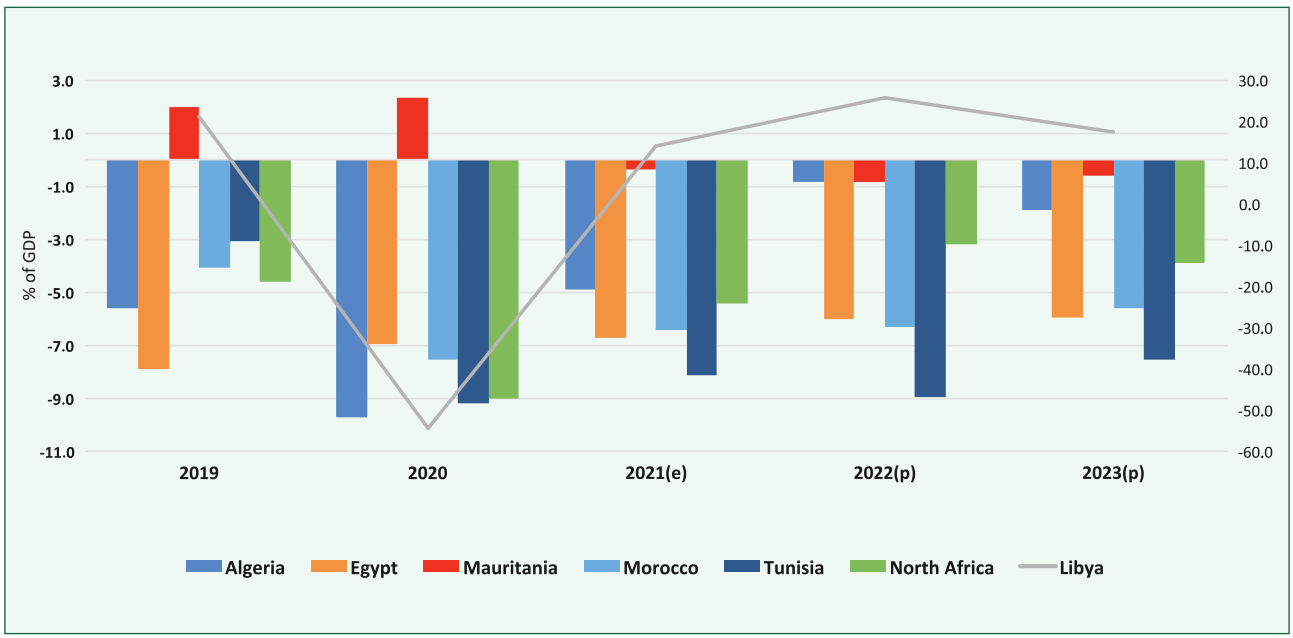
In oil producing countries (Algeria, Libya), global crude oil prices were on the rise, reaching USD 71/barrel in 2021, positively impacting oil revenues. In Algeria, the budget deficit shrunk to 4.9 percent of GDP against 9.7 percent in 2020. Increase in oil revenues compensated for increase in public investment (11.1 percent of GDP in 2021), as well as an increase in health expenditures and social support spending targeting the unemployed and vulnerable populations. In Libya, after a sharp deficit of 54.5 percent in 2020, the fiscal balance recorded a surplus of 13.8 percent of GDP in 2021, mainly due to the increase in hydrocarbon revenues. Regarding expenditures, public salaries represented the highest share of the 2021 budget (39 percent of total expenditures) followed by subsidies (24 percent). Development spending, with a share of 20 percent targeted sector projects and electricity.

In Egypt, Morocco and Tunisia, fiscal deficits remained high. For example, in Egypt, the fiscal deficit decreased slightly from 7 percent of GDP in FY2019-20 to an estimate 6.7 percent in FY2020-21. This slight decrease was driven by a decline in interest payments while a primary surplus has been maintained, estimated at 1.5 percent of GDP. In

contrast, the subsidy bill increased as well as public investments. On the revenue side, the ratio of revenue and grants to GDP, estimated at 17.9 percent, increased due to measures taken to expand the tax base within the framework of the Medium-Term Revenue Strategy approved in 2020, including digitalization, reduction of tax evasion and taxation of self-employed professionals. In Morocco, after several years of fiscal consolidation, the fiscal deficit nearly doubled due to the COVID-19 pandemic to 7.6 percent of GDP in 2020. In 2021, fiscal policy remained supportive with a deficit slightly narrowing to 6.4 percent of GDP despite the buoyant economic recovery. In Tunisia, the fiscal deficit was estimated at 8.1 percent of GDP in 2021, an improvement compared to 9.2 percent of GDP in 2020. Despite the good growth of fiscal revenue (+13 percent), the wage bill, fuel subsidies and debt servicing have increased in the budget.

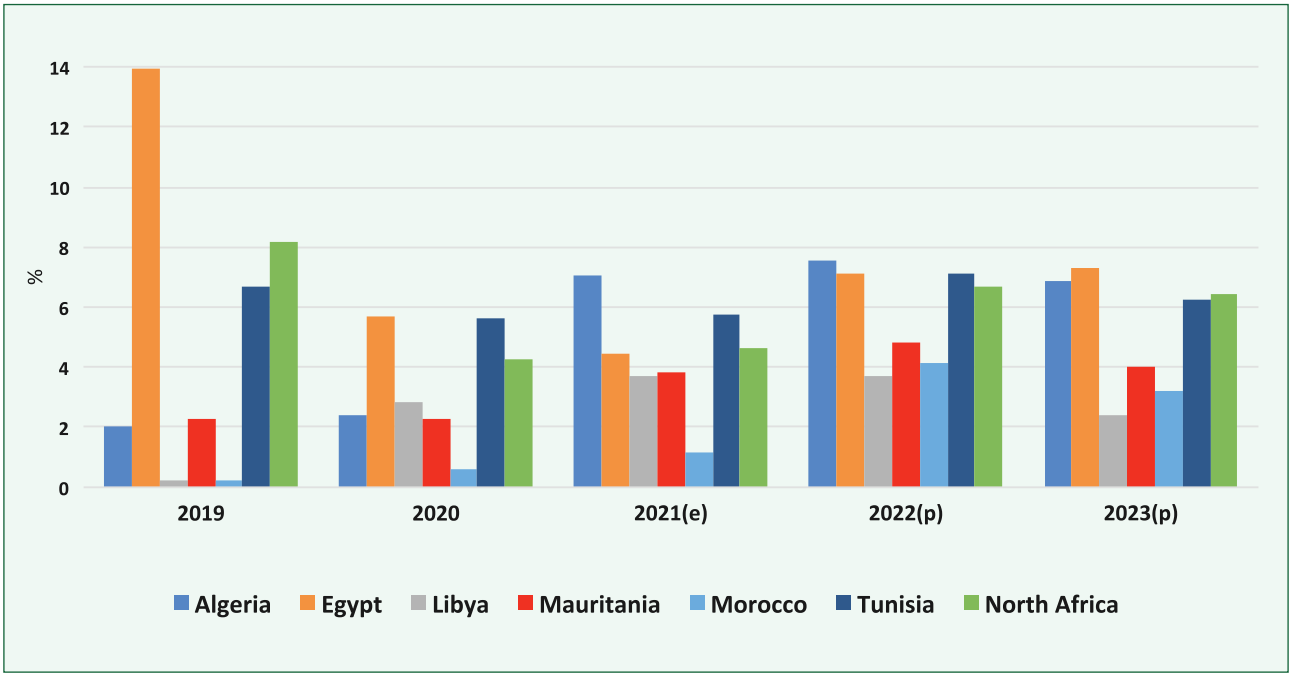
Mauritania's fiscal balance displayed a deficit of 0.4 percent of GDP in 2021 compared to a surplus of 2.3 percent in 2020 due to higher expenditures to mitigate the impacts of the pandemic.

Figure 1.5: Fiscal balances in North Africa by country



Source: AfDB statistics.
Note: Libya, an outlier, is shown on the right Y axis. Data are estimates for 2021 and projections for 2022–23.

Figure 1.6: Inflation in North Africa by country, 2019-23



Source: AfDB statistics.
Note: Data are estimates for 2021 and projections for 2022 and 2023.

1.1.6 Despite expansionary monetary policies, inflation remained subdued in North Africa

All North African countries adopted expansionary monetary policies to accelerate economic recovery and stem liquidity shortages in 2021. Central Banks lowered key interest rates and facilitated the refinancing of banks. In addition, all countries have resorted to domestic debt to finance budget deficits, creating a modest uptick in inflation. At the regional level, inflation slightly increased from 4.3 percent in 2020 to 4.6 percent 2021 with important disparities across countries (Figure 1.6).

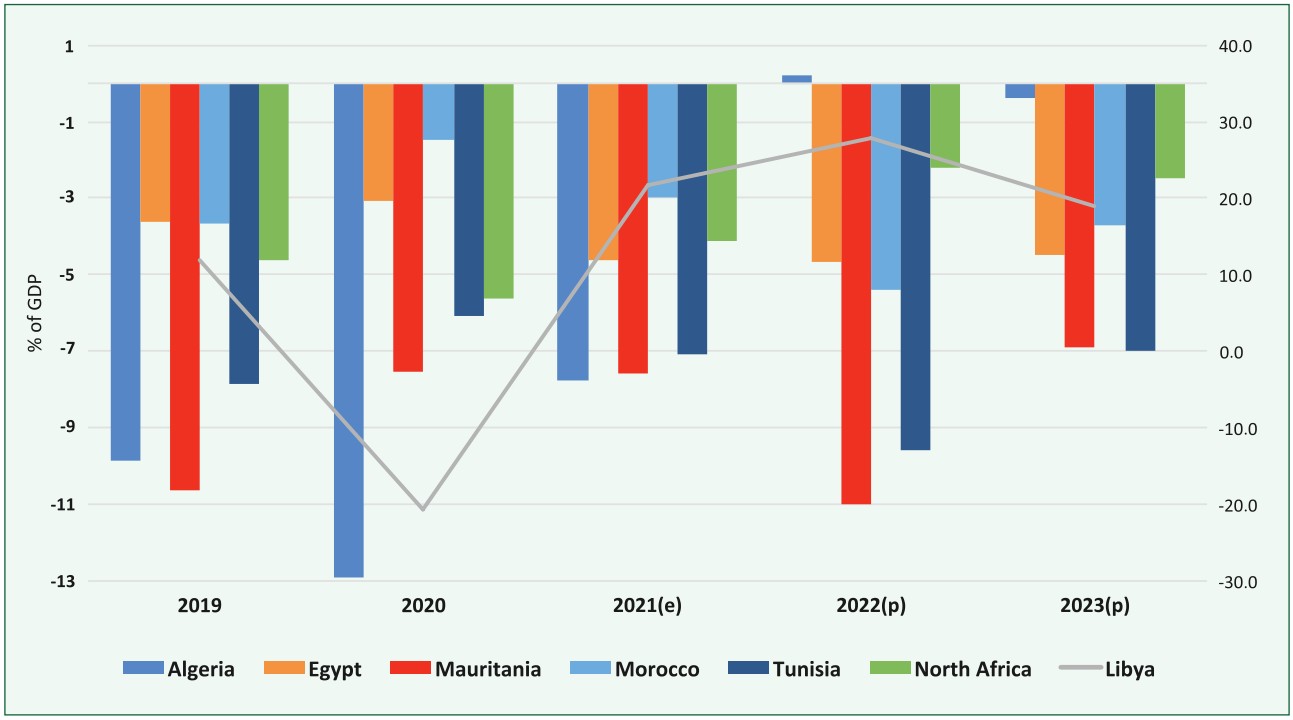
In Algeria, the Central Bank reduced the reserve requirement ratio from 10 percent to 2 percent and the key interest rate from 3.5 percent to 3 percent. In July 2021, the Central Bank launched a special refinancing program (representing 9.3 percent of GDP) to provide more resources to the government and the economy. Consequently, inflation increased from 2.4 percent in 2020 to 7 percent in 2021. In Egypt, inflation, estimated at 4.5 percent in FY2020-21, compared to 5.7 percent in FY2019-20, stayed below the Central Bank of Egypt's (CBE) target range of 7 percent driven by the fluctuations of consumer goods and energy prices. Key rates remained unchanged after the introduction of two interest rate cuts of 50 basis points in September and November 2020, providing scope for monetary policy to support the economic recovery. In Libya, the inflation rate increased to 3.7 percent in 2021, from 2.8 percent in 2020, following a rise in imported food product prices. In December 2021, an initiative was launched to reconcile the monetary policy of the Central Bank of Libya with its Eastern branch. In early 2021, the Libyan dinar was significantly devalued by 320 percent against the dollar to harmonize the official and parallel market rates and this also partly drove the rise in inflation.

The Central Bank of Mauritania (BCM) continued its accommodative monetary policy in 2021. Money supply increased by 23.1 percent, year-on-year, supported by the growth of net foreign assets (90.1 percent) and credit to the economy (12.8 percent). The interbank market rate remained stable at 5.5 percent. Inflation increased from 2.3 percent in 2020 to 3.8 percent in 2021 after a rise in import prices, especially food products, in connection with the supply chain tensions and the increase in the costs of maritime transport following the recovery of global economic activity. In Morocco, inflation slightly increased in 2021, reaching 1.2 percent against 0.6 percent in 2020, due to an increase of non-food product prices by 1.8 percent. Nevertheless, inflation was still moderate allowing for monetary policy to remain accommodative. In 2020, Bank Al-Maghrib decreased its benchmark interest rate, by 75 basis points and widened the fluctuation band of the dirham to ± 5 percent from ± 2.5 percent. The basket of reference currencies remains unchanged (60 percent for the EUR and 40 percent for USD). On the other hand, Tunisia had to tap the domestic financial market to meet its significant financing needs in 2021, following the downgrading of its sovereign rating and limited access to external financing. However, inflation was up slightly, from 5.6 percent in 2020 to 5.7 percent in 2021, due to price controls on food products, tobacco, transport, etc.

1.1.7 External accounts improved in oil exporting countries (Algeria and Libya) and deteriorated or stagnated in other North African countries

At the regional level, the current account deficit shrunk from 5.6 percent of GDP in 2020 to 4.1 percent in 2021 (Figure 1.7). However, if Libya's large current account balances are excluded in 2020 and 2021 (-20.7 percent of GDP and +21.6 percent of GDP, respectively), the regional current account deficit remained stable at 5.2 percent of GDP in both 2020 and 2021. While the current account deteriorated in Egypt, Morocco, and Tunisia and remained stable in Mauritania, it improved in Algeria and Libya due to an increase in export revenues as oil prices rose in 2021, as compared to 2020. However, full recovery in the tourism sector is expected to take time as is reflected in current account development in Egypt, Morocco, and Tunisia.

Figure 1.7: Current account balances in North Africa by country



Source: AfDB statistics.
Note: Libya, an outlier, is shown on the right Y axis. Data are estimates for 2021 and projections for 2022 and 2023.

In Algeria, the current account deficit improved by 5.1 percentage points of GDP between 2020 and 2021, from 12.9 percent of GDP to 7.8 percent of GDP due to the increase in volume and price of hydrocarbon exports, but also non-hydrocarbon exports (iron and steel in particular) while import restraint measures were maintained. In Egypt, the decline in tourism and global trade which also adversely impacted Suez Canal receipts, widened the current account deficit, from 3.1 percent of GDP in FY2019-20 to 4.6 percent in FY2020-21. Tourism revenues decreased by 50.7 percent in FY2020-21 to USD 4.9 bn, against USD 9.9 bn in FY2019-20. In Libya, the resumption of oil exports led to a surplus of 21.6 percent of GDP in 2021 against a deficit of 20.7 percent of GDP in 2020. Total foreign-exchange reserves jumped to USD 22.9 billion in 2021, or 12.9 months of imports. In Mauritania, the current account deficit remained stable at 7.6 percent of GDP despite the improvements in the trade balance and favorable export prices. Morocco's current account deficit widened to 3 percent of GDP in 2021 from 1.5 percent of GDP in 2020, due to a rebound in imports offsetting the recovery of exports. In Tunisia, the current account deficit widened from 6.1 percent in 2020 to 7.1 percent of GDP in 2021 exacerbated by hikes in the food and energy import bills.

1.1.8 Apart from remittances received and debt disbursements, other financial flows to North Africa have been declining in recent years

Foreign Direct Investment (FDI), in particular, has declined from USD14.91 billion in 2018 to USD10.26 billion in 2020 (Figure 1.8). Despite this decrease, the region is still the largest beneficiary of FDI in Africa.

Large inflows of remittances to North Africa in 2021

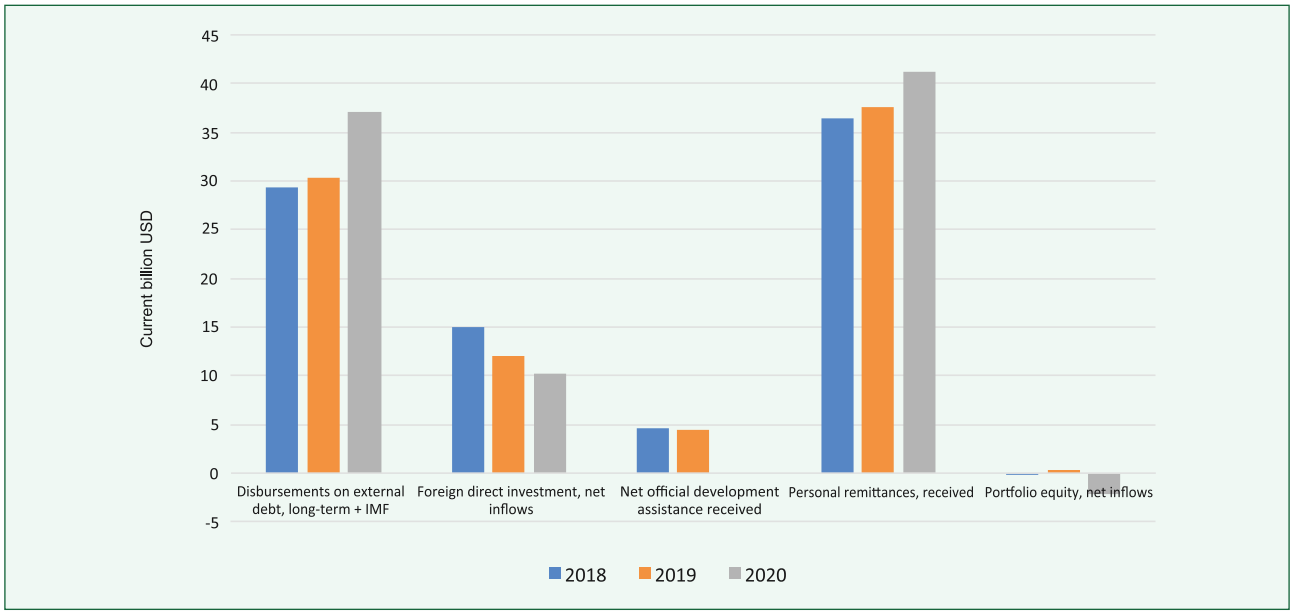
Between 2020 and 2021, remittances increased substantially in Egypt and Morocco (+6.4 percent and +39.9 percent), representing respectively 7.8 and 7.9 percent of GDP (Table 1.1). In Tunisia, remittances remained an important share of GDP but registered a decrease (-4.2 percent between 2020 and 2021).

Table 1.1: Migrants' remittance inflows by country

Migrant remittance inflows (USD million)	2018	2019	2020	2021e	Remittances as a share of GDP in 2021e (%)	Change between 2020 and 2021 (in %)
Algeria	2 013	1 778	1 717	1 759	1.1	+2.4
Egypt, Arab Rep.	25 516	26 781	29 603	31 501	7.8	+6.4
Mauritania	60	64	169	169	1.8	0
Morocco	6 919	6 963	7 419	10 375	7.9	+39.9
Tunisia	1 855	2 026	2 290	2 195	4.7	-4.2

Source: AfDB based on KNOMAD data (May 2022), https://www.knomad.org/data/remittances.
Note: Data for Libya was not available.

Figure 1.8: Financial flows to North Africa by type, 2018-20 (in billion USD)

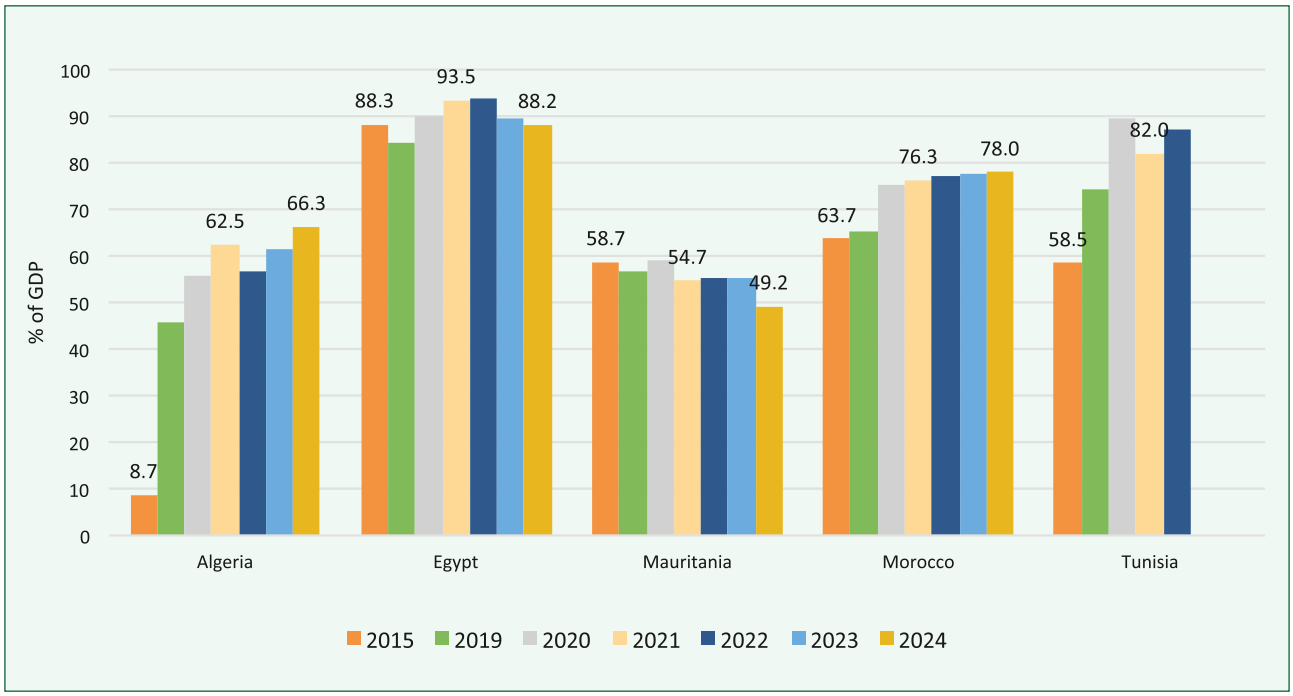


Source: AfDB based on World Bank data, World Development Indicators.
Note: Official development assistance received was missing for 2020.

Recent upward trends in public indebtedness in North Africa

Due to a significant increase in public expenditures to fight the pandemic, and protect economies and vulnerable populations, the COVID-19 pandemic led the governments in North Africa to borrow more, both internally and externally, driving up public debt to high levels in 2020 and 2021 (Figure 1.9). In the period 2015-21, central government debt as a share of GDP increased significantly in Algeria (from 8.7 percent to 62.5 percent), in Morocco (from 63.7 percent to 76.3 percent), and in Tunisia (from 58.5 percent to 82 percent). In Egypt and Mauritania, central government debt remains at high levels (93.5 percent and 54.7 percent of GDP, respectively) but is expected to decrease in the short-term in line with their debt policy. Latest available data for Libya's public debt was around 155 percent of GDP in 2020 as compared 142.8 percent in 2017. Also, indebtedness of state-owned enterprises with contingent liabilities is estimated on the high side in North Africa as many public enterprises have acknowledged financial difficulties for a long time, which were exacerbated by the COVID-19 pandemic.

Figure 1.9: Central Government debt as a share of GDP by country, 2015-24



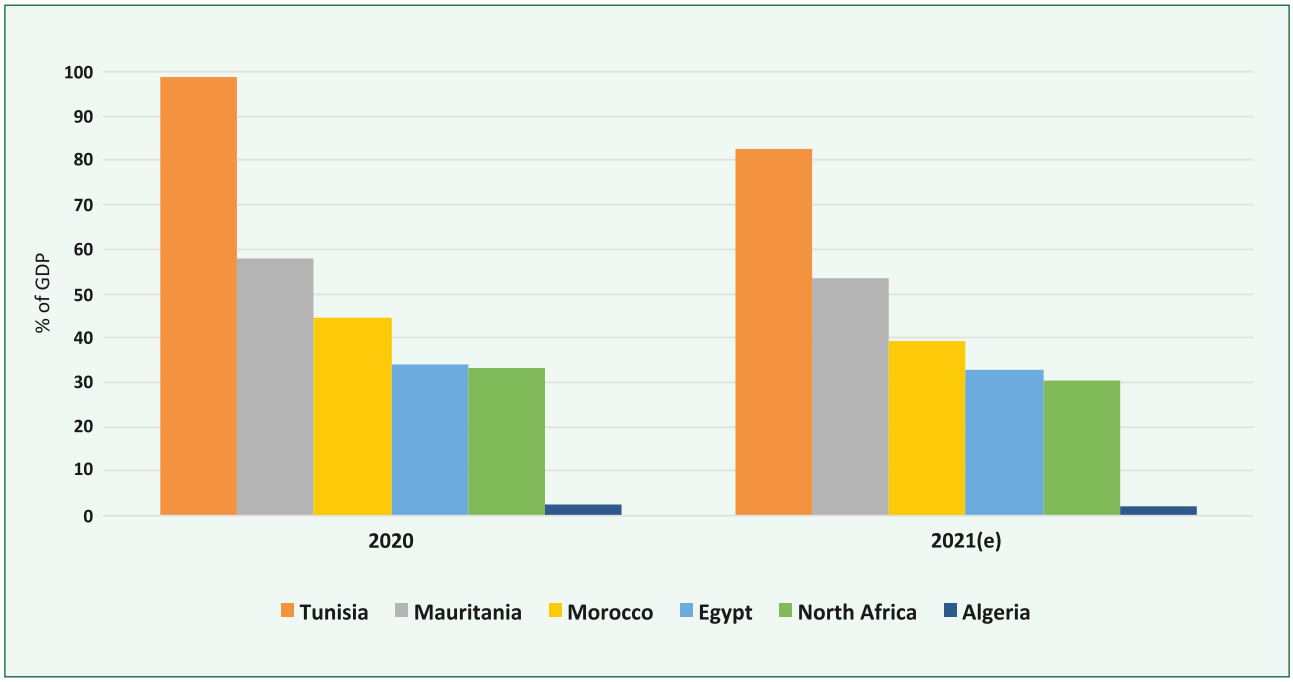
Source: International Monetary Fund (IMF), World Economic Outlook Database, April 2022.
Note: For Egypt, it is the general government debt, not the central government debt.

Exacerbated by the COVID-19 pandemic, external debts remain high in several North African countries

Algeria and Libya have limited exposure to external debt as domestic debt comprises a large proportion of public debt. The Central Bank of Libya, with its large stock of foreign reserves, operates as a de facto Ministry of Finance. In contrast, Egypt, Mauritania, Morocco, and Tunisia have a larger exposure to external borrowing (Figure 1.10). The structure of debt is also different across countries. For instance, Mauritania and Tunisia

borrow mainly from multilateral and bilateral donors. Morocco has recently increased its bond issuances, tapping international capital markets while Egypt presents a significant share of international investor on the local debt market. As per the International Monetary Fund (IMF) debt sustainability analysis published in July 2021, Egypt's debt remains sustainable in the medium term but with strong balance of payment pressures and large gross financing needs. Since the adoption of the flexible exchange rate regime in 2016, Egypt's external debt has increased its sensitivity not only to the Egyptian pound fluctuations in the market but also to foreign investors' confidence. Mauritania, however, is at high risk of debt distress as per the joint World-Bank-IMF Debt Sustainability Analysis (DSA)[2]. As such it was granted access to pandemic-related support measures such as the G20 Debt Service Suspension Initiative (DSSI) and has taken appropriate policy to alleviate its debt (Box 1.1). The refinancing risk of Morocco's sovereign debt is limited given its average maturity of 7 years and 4 months and a moderate average cost of 3.6 percent. In February 2022, the IMF estimated the debt to be sustainable, but with increased sensitivity to a significant drop in medium-term real GDP growth. Given its high level of external debt (82.4 percent of GDP in 2021), Tunisia's sovereign rating was downgraded by several agencies over 2021-22 (Table 1.2). The country currently faces restricted access to international financial markets, to which are added difficulties in mobilizing external resources from donors. This is in part due to the absence of an IMF program.

Figure 1.10: Total external debt by country, 2020-21



Source: AfDB statistics.
Note: Data for Libya was not available.

[2] https://www.worldbank.org/en/programs/debt-toolkit/dsa. The DSA for Mauritania was released in September 2020, before the recent debt alleviation initiatives.

Table 1.2: Credit rating scales and latest changes in North Africa, by agency				
	Standard & Poor's	Moody's	Fitch	Credit worthiness
Egypt	B (stable outlook)	B2 (negative outlook)	B+ (stable outlook)	Highly speculative
	Upgrade in May 2018	From stable to negative outlook in May 2022	Upgrade in March 2019	
Morocco	BB+ (stable outlook)	Ba1 (negative outlook)	BB+ (stable outlook)	Non-investment grade speculative
	Upgrade in April 2021	From stable to negative outlook in February 2021	Upgrade in October 2020	
Tunisia	N/A	Caa1 (negative outlook)	CCC (outlook n/a)	Substantial risks
		Downgrade in October 2021	Downgrade in March 2022	

Source: Trading Economics, https://tradingeconomics.com/country-list/rating (May 31, 2022).

Box 1.1 Recent debt alleviations in Mauritania

In August 2021, Mauritania and Kuwait reached an agreement to restructure bilateral debt contracted between 1973 and 1978. In 2021, Mauritania's passive debt vis-à-vis the Kuwait Investment Authority reached USD 994 million (roughly 12 percent of GDP), more than ten times the original borrowing (USD 87 million). The agreement provided for the cancellation of 95 percent of the interest due (USD 760 million) accumulated over more than three decades. The remaining 5 percent will be devoted to Kuwaiti investments in Mauritania. Mauritania will reimburse USD 87 million over a period of 20 years (2024-44). The amortization of the principal (82.7 million) is planned with a grace period of two years and an interest rate of 0.5 percent, plus a pledge fee of 0.2 percent. This represents an annual debt service of around USD 4.35 million over this period.

In April 2022, Mauritania and Saudi Arabia signed an agreement to convert a deposit into a concessional loan. In 2015, Saudi Arabia placed a USD 300 million deposit (3.7 percent of GDP) at the Central Bank of Mauritania at an interest rate of 3 percent to support the national currency and the balance of payments. Before this agreement, the deposit was expected to absorb around 0.9 percent of GDP over the period 2024-28 at an interest rate of 2 percent in 2021. In the recent agreement, the loan will be repaid over a period of 20 years, with a grace period of 8 years, and at an interest rate of 1 percent.

These recent debt alleviations should improve Mauritania's macroeconomic performance and restore confidence in the country's ability to meet its obligations. Combined with efforts to improve the business climate, they should effectively create adequate conditions for domestic and foreign investment, and create space for additional loans and grants to finance various development projects. The country expects to attract international capital not only in the hydrocarbons sector but also in livestock and agri-food sectors, boosting economic growth. Despite its level (about USD 4.2 billion in 2021), the external debt is expected to decrease further in line with new debt relief initiatives. During the COVID-19 crisis, the Debt Service Suspension Initiative (DSSI) allowed the country to save over USD 200 million in repayment until it ended on June 30, 2021. After the DSSI, interest payments are expected to increase over the coming years. Enhancing domestic resource mobilization and instituting efficient debt management systems will be important for long-term debt sustainability in Mauritania.

Source: AfDB, based on data gathered from national authorities and IMF.

1.1.9 The 2021 General SDRs Allocation is a breath of fresh air for North African economies, but financing needs remain large

Of the USD 650 billion under the IMF Special Drawing Rights (SDRs) allocations in August 2021, the North Africa region received an allocation that amounts to USD 9.7 billion. This general allocation was meant to help countries address the long-term global need for reserves and foster the resilience and stability of the global economy in the context of the COVID-19 pandemic. Country SDRs allocations were made in proportions to quotas in the Fund. Of the total amount of USD 32.5 billion that was allocated to Africa, USD 9.7 billion (or 29.4 percent) was allocated to the North Africa region (see Table 1.3). While the SDRs allocation that North Africa received represents a breath of fresh air, it remains far below the financing needs of the countries in the region[3]. The SDRs allocation represented only 2 percent of Egypt's financing need in FY2021-22, while it represented 6 percent and 9 percent in 2021 for Morocco and Tunisia respectively.

Apart from Mauritania and Tunisia, North African countries have not yet indicated the use of their SDRs allocation (Box 1.2). Countries added their SDR allocations in their Central Bank's books as reserves assets, thus contributing to increasing foreign reserve levels. However, Mauritania and Tunisia converted their allocations into local currency to fund their 2021 budgets. At end 2021, estimated foreign reserves amounted to USD 44.1 billion in Egypt (7 months of imports), USD 2.3 billion in Mauritania (8.3 months of imports, excluding extractive industries), USD 35.3 billion in Morocco (7 months of imports) and USD 8 billion in Tunisia (4.5 months of imports). In Algeria, despite the SDRs allocation, foreign exchange reserves had declined to USD 43.6 billion (11.1 months of imports) at end-2021, from USD 48.2 billion (12.5 months of imports) at end-2020[4]. In Libya, the Ministry of Finance covers its financing needs mainly through borrowing from the Central Bank but information on the use of the SDRs allocation is not available. The latest available data indicates that Libya's foreign exchange reserves at the end of 2020 totaled USD 38.37 billion (30 months of imports), compared to USD 44.9 billion in 2019.

Table 1.3: SDRs allocation by country

Country	SDR in USD billion	SDR in % of GDP	SDR in % of gross foreign exchange reserves	As % of total SDR to Africa	Rank in Africa
Algeria	2.67	1.6	6.0	8.2	4
Egypt	2.8	0.8	2.4	8.5	3
Morocco	1.2	1.1	3.2	3.6	8
Mauritania	0.175	2.1	7.6	0.53	41
Libya	2.1	5.0	9.2	6.4	5
Tunisia	0.740	1.8	10.0	2.24	14
North Africa	**9.7**	-	-	**29.4%**	-

Source: AfDB based on IMF data (https://www.imf.org/en/Data).

[3] In May 2021, the IMF estimated additional financing needs for the North African region (also including Djibouti, Somalia, and Sudan) at USD 151.8 billion. https://www.imf.org/-/media/Files/News/Speech/2021/africa-summit-background-note-may-13-2021.ashx.
[4] International Monetary Fund (2021) Algeria: 2021 Article IV Consultation-Press Release; and Staff Report; and Statement by the Executive Director for Algeria, December 2021.

Box 1.2: The use of the 2021 General Special Drawing Rights Allocation in North Africa

On August 23rd, 2021, the IMF made effective its fourth general allocation of Special Drawing Rights (SDRs) to all member countries. In the past, the Fund has authorized three general allocations of SDR 9.3 billion, SDR 12.1 billion, and SDR 161.2 billion respectively in 1970-72, 1979-81, and 2009. Expressed in constant prices for comparison purposes, the 2021 general SDRs allocation (SDR 456 billion) is by far the largest allocation to date (more than 3 times the 2009 allocation). Based on quotas in the Fund, advanced countries received USD 375 billion. Developing countries received USD 275 billion, of which USD 32.5 billion were allocated to Africa. Egypt received the highest allocation in North Africa, and the third highest in Africa, followed by Algeria (4th), Libya (5th) and Morocco (8th). Tunisia and Mauritania were ranked 14th and 41st in Africa respectively.

Many North African governments have not provided clear objectives regarding the use of their allocations. All countries used their SDR allocations to supplement their foreign exchange reserves. However, Morocco's Central Bank made it clear that the allocation of SDRs will be recorded as long-term liabilities. Mauritania and Tunisia converted their allocation into monetary easing to fund their 2021 budgets.

Although the SDR allocation had no impact on sovereign debt sustainability in the region, it decreased countries' refinancing risk in foreign currency. This risk was low in Algeria and Libya, due to higher shares of domestic debt in total debts. Mauritania's authorities recognized the importance of SDRs, but also advocated for debt cancelation and for lending more SDRs to regional and multilateral development banks. In Tunisia, the public debt was estimated at 82.4 percent of GDP in 2021, of which more than two-thirds was external debt. External debt services over the next 3 years are projected at around USD 9 billion, equivalent to 12 times the amount of the country's SDR allocation, which places a significant burden on both the state budget and external reserves.

Source: AfDB based on IMF data (https://www.imf.org/en/Data).

1.1.10 The pandemic pushed North Africa's poverty rates upward

While North Africa fares better than Sub Saharan Africa in terms of the proportion of populations in extreme poverty, the incidence of poverty has recently trended upward. In 2020, the World Bank estimated that extreme poverty rates in the region doubled to 7.2 percent in 2018 from 2.3 percent in 2013. The pandemic has exacerbated the outlook for poverty in the region. While public interventions may have mitigated the worst effects of the pandemic, the welfare loss is expected to have long-lasting effects. The ongoing uncertainty brought about by the Russia-Ukraine war and its implications on food prices and food security are expected to push additional households into poverty. The rest of the section provides recent details with regards to the fight against poverty and authorities' efforts to provide a buffer against the negative impact of the 2020 shocks in North African countries.

In December 2020, Egypt's rate of poverty was estimated at 29.7 percent and extreme poverty at 4.4 percent. Several initiatives have been launched to ensure a decent life for the country's large and fast-growing population, particularly in remote rural areas. In addition, most public investment projects have targeted labor-intensive construction projects, which have contributed to the decrease in the unemployment rate to 7.4 percent in 2021, compared to 7.9 percent in 2020. Post-conflict Libya continues to struggle with poverty and food insecurity as well as health-related shocks (Box 1.3). According to the 2020 World Food Program-World Bank

survey[5], more than half of households declared their income insufficient to cover their basic expenses and about 10 percent of them to cover their food consumption. Among the 600 000 migrants registered in the country, one in five migrants is food insecure while more than half are considered marginally food secure. In addition, the devaluation of the local currency has had adverse effects on Libyans' purchasing power. On the jobs front, the number of unemployed doubled from 1.16 million in August 2021 to 2.10 million in November 2021[6] after the government of Algeria decided to provide unemployment benefits to the jobless population. The country continues to experience a tepid job market. Prior to the crisis, the rate of employment was estimated at 11.4 percent in 2019.

Box 1.3: The worrisome health situation in Libya

In Libya, health needs are immense while the quality of the health system and access to health services have witnessed a considerable decline since 2011. This situation has been caused by years of conflict. Health Cluster (2021) reported that 80 health facilities (37 percent of total health facilities) were completely or partially damaged. The outbreak of the COVID-19 pandemic put additional pressure on the health system, already suffering from limited medical facilities and a lack of adequate staff and equipment. According to Health Cluster (2021), a total of 1.2 million people needed healthcare in 2021, against 3.9 million in 2020. The report indicates that in some areas, "up to 90 percent out of all existing primary health care centers remained closed. Only 20 percent of communities have child health and emergency services, 25 percent general clinical services, and 15 percent services for reproductive health care and non-communicable and communicable diseases". Very few public health facilities offer a standard package of essential health care services in the country. Mental health services are basically missing, and needs are immense. Additionally, electricity shortages and lack of adequate water, sanitation, and hygiene facilities have reduced the quality of care. Also, the sector continues to be under-resourced with shortages of available medicines and health workers.

Source: AfDB based on Health Cluster (2021).

In Mauritania, according to the survey on Household Living Conditions in 2019-20 [Agence Nationale de la Statistique et de l'Analyse Démographique (Ansade) 2021], 28.2 percent of the population lived below the poverty line with high regional disparities. The unemployment rate reached 12.2 percent in 2019-20 but about 41.9 percent of the population is estimated to be underemployed, with high rates for women (58.2 percent) and youth (53.1 percent). The poorest represent 7.9 percent of total annual expenditure while the wealthiest account for 39.7 percent of total expenditure. The onset of COVID-19 has led to job and income losses and pushed around 48 000 people (one percent of the total population) into poverty. The country intends to adopt an adaptive social protection system to face crises. In Morocco, the rate of poverty which had been on a trend down from 6.2 percent in 2011 to 4.8 percent in 2014 increased by at least one percentage point in 2021, whilst the incidence of absolute poverty characterised by unmet needs increased sevenfold,

[5] https://thedocs.worldbank.org/en/doc/586ef96cb58ebab735d2d2c1c357a67e-0350082021/original/mpo-lby.pdf
[6] Agence Nationale de l'Emploi (ANEM), www.anem.dz/fr

from 1.7 percent in 2014 to 11.7 percent in 2021 but subsequently dropped due to the government's swift programs. Small, and medium enterprises (SMEs) which provided 73 percent of jobs prior to the crisis, were also hit hard. Consequently, unemployment increased from 9.2 percent in 2019 to 12.8 percent in the second quarter of 2021. Due in part to the recovery, the unemployment rate fell by close to one percentage point in the third quarter of 2021. The new development model has put human capital at the center of its vision and intends to set up universal social security by 2025. In Tunisia, according to a joint study of the AfDB and the "Institut arabe des chefs d'entreprises" in (2022), the economy has lost 130 000 jobs because of the pandemic. The rate of unemployment reached 18.4 percent at the third trimester of 2021, or one percentage point higher from the beginning of 2021. The situation is more complex for women (unemployment rate at 24.1 percent) and people with a high school diploma (30 percent unemployed). The rate of poverty is at 15.3 percent, mostly concentrated in rural areas. Most poor families, estimated at around 900 000 according to the national register of poverty, benefit from subsidy programs and a monthly aid of 180 dinars (54 euros) per family. With the recent crisis, additional financial support was provided to them.

1.2 NORTH AFRICA'S MACRO-ECONOMIC PROSPECTS

Macroeconomic prospects for the region are favorable, with real GDP growth rates (4.5 percent in 2022 and 4.2 percent in 2023) slightly above Africa's averages (4.1 percent in 2022 and 2023). Other macroeconomic projections indicate that inflation would follow the increasing global trend but remain subdued at 6.7 percent in 2022 and 6.4 percent in 2023. Between 2021 and 2023, fiscal balances in all North African countries, apart from Mauritania and Tunisia, were expected to improve at the regional level (from -5.4 percent of GDP to -3.9 percent of GDP). Current account balances are projected to improve in oil exporting countries and to deteriorate in others. The regional current account deficit is projected to be 2.2 percent of GDP in 2022 and 2.5 percent in 2023.

1.2.1 Overview of the economic growth outlook in North Africa remains positive

The region is projected to grow by 4.5 percent in 2022 and 4.2 percent in 2023 with differences across country. The Russia-Ukraine conflict is expected to have an adverse effect on real GDP growth in the region except for oil-exporting Algeria (Table 1.4). Comparison between growth estimates in January 2022 and April 2022 indicates that the region lost a 0.3 percentage point of growth in 2022.

Algerian growth is expected to slow slightly in 2022 to 3.7 percent and to 2.6 percent by 2023. Following the conflict between Russia and Ukraine, world crude oil prices have risen, but the ability to increase production remains limited in the short term. This dependence on international oil prices underlines the need for Algeria to diversify its economy towards natural gas, petrochemicals and agricultural products which have a strong potential for improving exports improvement. Real GDP growth in Egypt was expected to rebound to 5.7 percent in FY2021-22, and 5.1 percent in FY2022-23. This was supported by a better performance of the industrial and services sectors (mainly tourism) as well as an increase in both public and private investments together with the government's commitment to the implementation of the second phase of its structural reforms program. It is recommended that Egypt mobilizes the necessary resources to protect the vulnerable populations and improve the targeting of social protection programs. Furthermore, it is recommended that Egypt accelerate reforms to catalyze private sector development that would support a stronger, more resilient, and inclusive growth.

Table 1.4: Real GDP Growth, comparison between estimates in January 2022 and April 2022				
	Real GDP Growth (%)	Real GDP Growth (%)	Difference from January 2022 estimates (in percentage points)	
	2022(e)	2023 (p)	2022	2023
North Africa	**4.5**	**4.2**	**-0.3**	**-0.6**
Algeria	3.7	2.6	+1.3	0.5
Egypt	5.7	5.1	-0.6	-0.9
Libya	3.5	4.4	-1.3	-3.1
Mauritania	4.8	4.6	-0.1	-0.8
Morocco	1.8	3.3	-0.9	-0.6
Tunisia	2.5	3.2	-0.7	-0.3

Source: AfDB statistics, April 2022.

The Libyan economy was projected to grow by 3.5 percent in 2022 and by 4.4 percent in 2023 driven by the resumption of oil production, higher oil demand, and international prices. However, the forecasts depend mainly on progress in the political process and the improvement of the security situation, which remains fragile. The presidential election, initially planned for the end of 2021, was postponed, delaying further the process of achieving unified governmental institutions. It is recommended that the authorities mobilize domestic resources to support economic diversification as well as a clear reconstruction strategy in the public infrastructure sector. In Mauritania, economic growth is projected to reach 4.8 percent and 4.6 percent in 2022 and 2023, respectively, slightly below its pre-pandemic level. Growth would be driven mainly by the extractive and construction sectors and substantial export earnings from iron ores, gold, and copper. Downside risks include high volatile commodity markets, and security threats in the Sahel region. Enhancing domestic resource mobilization and opting for concessional financing for productive investment will be important for long-term debt sustainability. Debt restructuring agreements with Kuwait in August 2021 and with Saudi Arabia in April 2022 are expected to contribute to improving climate affairs. Real GDP growth in Morocco is projected at 1.8 percent in 2022 and 3.3 percent in 2023 given that the authorities have undertaken swift measures to mitigate the impact of the 2022 drought. The program announced by the government in accordance with the New Development Model is ambitious. The country aims to generalise social protection by 2025 in the form of compensation for job loss as well as health insurance and family allowances. Nevertheless, the program could hamper medium term fiscal consolidation, causing further increase in the public debt. In Tunisia GDP growth is projected at 2.5 percent in 2022 and 3.2 percent in 2023, driven by the revival of the tourism sector and the industrial sector. This recovery in economic activity is not robust enough yet to recover the jobs lost since the start of the COVID-19 pandemic. These projections highlight the need to improve the business climate and increase competition to accelerate the recovery of private investment. A restoration of the sustainability of public finances, prudent debt management and the availability of essential goods at affordable prices for the vulnerable population will be necessary to mitigate the risks.

1.2.2 High global food and energy prices are expected to drive inflation up

Rising energy and oil prices in the international markets are expected to affect inputs and transport prices in all North African countries, fueling the pressures of inflation and undermining competitiveness. Inflation in the region has been

projected to increase from 4.6 percent in 2021 to 6.7 percent in 2022 and 6.4 percent in 2023. Table 1.5 indicates the projections for inflation in 2022 and 2023 as well as the difference in inflation rates projected prior to the Russia-Ukraine conflict in February 2022. Although it has increased in most countries, short-term inflation would remain generally subdued.

Table 1.5: Inflation by country, comparison between estimates in January 2022 and April 2022

	Inflation (%)	Inflation (%)	Difference from January 2022 estimates (in percentage points)	
	2022(e)	2023 (p)	2022	2023
North Africa	**6.7**	**6.4**	**+1.4**	**+1.1**
Algeria	7.5	6.9	+2.4	+3.8
Egypt	7.1	7.3	+1.1	+0.3
Libya	3.7	2.4	-4.3	-4.1
Mauritania	4.8	4.0	+1.2	+0.1
Morocco	4.1	3.2	+3.0	+1.8
Tunisia	7.1	6.2	+1.1	+1.1

Source: AfDB statistics, April 2022.

1.2.3 Fiscal balances are expected to improve in the region

In the aftermath of the COVID-19 pandemic, countries are expected to further mobilize domestic resources and consolidate public finances. Fiscal balances are expected to improve in the region, from -5.4 percent of GDP in 2021 to -3.2 percent of GDP in 2022, and in all countries except for Mauritania and Tunisia. In surplus before the outbreak of the pandemic, Mauritania's fiscal balance is projected at -0.8 percent of GDP for 2022 and -0.6 percent for 2023. This low level of fiscal deficit would allow the country to keep public expenditures high to support the economic recovery and the social sector. The Tunisian budget for 2022 was based on an average oil price of USD 75 per barrel while it was above USD 100 on March 15, 2022, after it reached USD 130 on March 8, 2022. With the increase in the commodity prices, the latest estimates indicate about USD 2.3 billion of additional subsidies in the 2022 budget, including USD 439 million for food products. In the longer term, the implementation of bold reforms is necessary for the sustainability of public spending.

In countries where the energy sector is still heavily subsidized (Algeria, Libya, and Tunisia), higher costs for energy will weigh on countries' fiscal expenditures. However, the cost of food and energy subsidies is expected to be more than compensated by fiscal revenues from oil in oil-exporting Algeria and Libya (Table 1.6). Libya's fiscal balance is expected to record a surplus of 25.8 percent of GDP in 2022 and 17.3 percent in 2023 due to higher revenues from oil production. But, in the absence of a unified national vision, Libya's continued use of public revenues to finance wages and subsidies would be detrimental to investment in physical infrastructure.

Table 1.6: Differences in 2022 projections for fiscal balances and current account balances before and after the Russia-Ukraine crisis

	Fiscal balance (% of GDP)		Current account balance (% of GDP)	
	2022(e)	Difference from January 2022 estimates (in percentage points)	2022 (e)	Difference from January 2022 estimates (in percentage points)
North Africa	**-3.2**	**+1.3**	**-2.2**	**+1.4**
Algeria	-0.9	+3.8	0.2	+6.3
Egypt	-6.0	-1.0	-4.7	-1.2
Libya	25.8	+13.3	27.9	+12.5
Mauritania	-0.8	+0.2	-11.0	-3.9
Morocco	-6.3	-0.4	-5.4	-1.6
Tunisia	-9.0	-1.0	-9.6	-3.1

Source: AfDB statistics, April 2022.

1.2.4 Current account balance projections depend on whether the country is a net oil exporter or not

While exports in value will significantly increase in the oil-exporting countries, improving exports receipts and the trade balance, in oil importing countries (Mauritania, Morocco and Tunisia), the energy bill is expected to exacerbate the current account deficit (Table 1.6). The current account deficits should be particularly high in Mauritania and Tunisia. Mauritania's current account deficit is expected to widen to 11 percent of GDP in 2022 mainly due to the deterioration of the trade balance (increased import bill for products, especially food items) before being absorbed to 6.9 percent of GDP with the start of gas exports in 2023. Tunisia's current account deficit is expected to deteriorate to 9.6 percent in 2022 due to the slowdown in European demand and tourism, and to close at 7.0 percent in 2023. The downturn is supported by the recovery of manufacturing exports and the exploitation of a gas field which should make it possible to reduce energy imports.

1.3 RISKS TO MACROECONOMIC PROSPECTS IN NORTH AFRICA

The macroeconomic outlook for North Africa remains subject to risks including the emergence of new COVID-19 variants and the closing of borders hampering the tourism sector. Commodity prices have skyrocketed since the start of Russia-Ukraine conflict in February 2022, adding additional risks to the global recovery and jeopardizing North Africa's access to cereal imports and favorable conditions in international capital markets.

1.3.1 The COVID-19 situation has improved significantly but remains a downside risk

North Africa is following the global trend of new COVID-19 infections dropping, hospitalizations, and deaths. In May 2022, out of the total number of confirmed cases in Africa (11.54 million), four North African countries (Egypt, Libya, Morocco and Tunisia) were among the countries with the

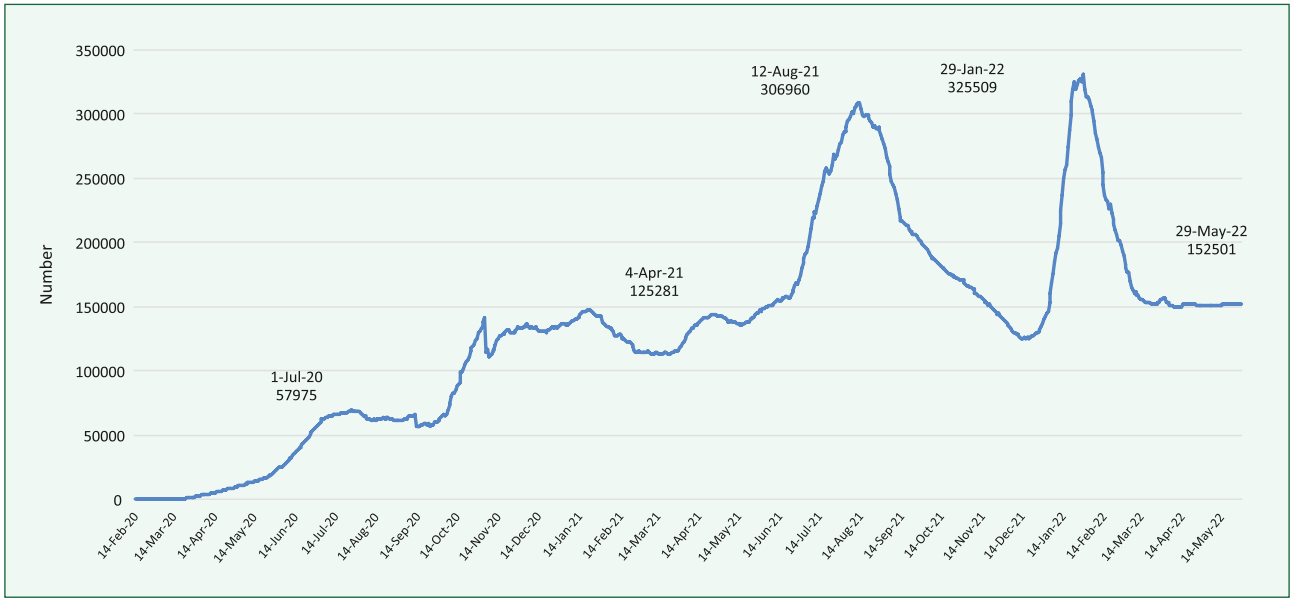
highest number of cases together with South Africa and Gabon. The case fatality rate in the region was 2.4 percent (while the current world average is 1.2 percent). On the other hand, the vaccination campaign has been quite extensive (Table 1.7). For instance, Egypt's and Morocco's vaccinations represent 16.9 and 11.2 percent respectively of the total number of vaccinations in the entire continent. The percentage of the population vaccinated (at least one dose of vaccine) was above the 10 percent recommended for all countries by the WHO (World Health Organization). The peaks of the pandemic were in the summer 2021 and at the beginning of the 2022, with the Omicron variant as the dominant strain (Figure 1.11).

Table 1.7: Status of vaccinations administrated in North Africa as of May 22nd, 2022

Country	Total vaccinations (number)	Population vaccinated (at least one dose)	Population completely vaccinated (minimum required doses)
Algeria	15 205 854	17.6%	14.5%
Egypt	82 828 973	44.9%	33.5%
Libya	3 456 207	31.9%	16.4%
Mauritania	2 650 000	33.5%	23.0%
Morocco	54 528 504	66.7%	62.7%
Tunisia	13 164 136	60.7%	53.4%
Africa	492 185 764	22.4%	17.1%
World	12 295 630 911	48.3%	41.7%

Source: AfDB statistics.

Figure 1.11: Total Active Cases of COVID-19 in North Africa, February 2020 to May 2022



Source: AfDB statistics.

1.3.2 The Russia-Ukraine conflict is expected to have important macroeconomic impacts on North African economies

The immediate consequence of the conflict between Russia and Ukraine included disruptions to global supply chains and financial markets around the world as well as increased international prices for oil, commodities, and cereals, which have sometimes reached record highs[7]. Given its geographical proximity and tight economic links to Europe, North Africa is expected to be strongly impacted. Table 1.8 analyzes the main opportunities and threats of the conflict on North African economies as well as the key strengths and weaknesses of the region.

Table 1.8: The SWOT analysis of the impact of the Russia-Ukraine conflict on North African economies

Strengths	Weaknesses
• Algeria, Egypt, and Libya are oil and gas exporting countries. Mauritania is expected to export gas starting from 2023 • Mauritania exports metals. • The North African region has high wind and solar potential • Egypt, Morocco, and Tunisia's industrial sectors are well developed	• Low trade level and concentration on few markets • High dependence on food imports, notably cereals • High vulnerability to climate change and water stress, notably in the agriculture sector • High level of public debt • Importance of energy subsidies in some North African counties (Algeria, Libya, Tunisia)
Opportunities	**Threats**
• Diversify economies and export markets • Attract foreign investors in minerals, oil and gas sectors and renewable energies, benefitting from energy market reallocation • Move from hydrocarbons to renewable energy and rationalise energy consumption • Invest in agriculture productivity • Undertake priority reforms to revive the economy and the private sector	• Inflation pressures, fueling social tensions • Reduced fiscal space and risk of debt overhang • Increased energy bill in oil importing countries • Reduced trade with the European Union and widened current account deficits • Food insecurity and increased poverty

The main transmission channels to North Africa's economies will be through higher energy, inputs, food, and non-food commodity prices but also through fiscal and current account balances, pressure on international capital markets, portfolio outflows, potential pressure on exchanges rates and reduced foreign direct investment. Challenges are expected to be more important in oil importing and market access countries.

[7] According to the AfDB statistics, between April 2021 and April 2022, the prices of commodities increased as follows: Crude brut oil (+79.7 percent), natural gas (+192.7 percent), copper (+11.1 percent), nickel (+102.7 percent), wheat HRW (+86.3 percent), corn CBT (+33.9 percent), rice (+24.1 percent), fertilizer DAP (+72.3 percent), fertilizer TSP (+130 percent), phosphoric rock fertilizer (+161.9 percent).

Food prices, security issues and poverty

North Africa, which is a water stressed and arid region, depends heavily on food imports. As large importers of wheat, corn, and vegetable oil mainly from Russia and Ukraine, countries would suffer from the disruption of the market. For instance, Egypt is the world's largest importer of wheat[8]. Out of its 13 million tons of wheat imports in 2021 (totalling USD 4 billion annual spending), 85 percent comes from Russia and Ukraine, as does 73 percent of its sunflower oil.

Similar pictures appear in other North African countries. Algeria is the fifth largest importer of wheat worldwide (7.7 million tons in 2021), Morocco is ranked 14th (4.5 million tons), Tunisia is 32nd (1.9 million tons), Libya is 38th (1.4 million tons). In Mauritania, wheat imports increased from 444 000 tons in 2018 to 700 000 tons in 2021. Countries are currently looking for alternative suppliers, but world supply is limited. Also, increased wheat and corn prices would affect the livestock, meat and poultry sectors and impact many other food products (eggs, semolina, pasta, etc.).

Due to unfavorable climatic conditions, agricultural production in the North African region is expected to decline in 2022, fueling further food inflation with negative impacts on poverty. Food represents almost the entire consumption basket of poor households. In addition, subsidies on basic food products have been maintained in North African countries as a measure for alleviating poverty. For instance, in its 2021/22 budget, the government of Egypt allocated USD 3.3 billion for bread subsidies. In Morocco, an exceptional drought has already reduced agricultural yields in 2022 and forced the government to increase bread subsidies and rely on imports. Consequently, higher food prices will impact both countries' trade balances and fiscal deficits.

Due to the COVID-19 pandemic, rising food costs have already sparked social tensions in North Africa. As a staple food in North Africa, the price of bread is particularly monitored. Price increases may generate popular discontent and push additional people into poverty.

Higher energy prices would benefit oil-exporting countries

As exporters of oil and natural gas, Algeria, Egypt, and Libya would benefit from the rise in hydrocarbon prices. However, their capacity for increasing production is limited in the short-term. Libya was able to set oil production at around 1.2 million barrels per day (mb/d) during 2021 as compared to 0.4 mb/d during 2020. This is still far from its potential to produce three mb/d. Oil production in Algeria has been progressively on the decline for several years at around 950,000 barrels per day in 2021 Natural gas exports have been limited through an increasing domestic demand and the lack of investment in the sector (Box 1.4). With recent crude oil and gas discoveries, Egypt exports high volumes of Liquefied Natural Gas (LNG). The hydrocarbon exports revenues totaled USD 12.9 billion in 2021. Mauritania will become a natural gas exporter in the near future as production from the Grand Tortue Ahmeyim offshore gas field (GTA) that the country shares with Senegal is scheduled for 2023.

Trade and current account balance

Higher prices for metals. The war in Ukraine is also causing international prices of metals to soar, including aluminum, copper, nickel which are used in many export sectors such as the automotive, chemicals and electronics sectors in North Africa. The main producers (Egypt, Morocco, and Tunisia) would have to incorporate these additional costs in the prices of exports, which may reduce the external demand in the short-term. In contrast, it should benefit Mauritania which exports iron ore, copper, and gold, affecting the trade balance positively.

Economic slowdown in the European Union (EU). Trade flows between North Africa and Russia and Ukraine are

[8] https://www.indexmundi.com/agriculture/?commodity=wheat&graph=imports#google_vignette

concentrated in raw materials and primary agricultural products. However, second round effects from slower growth in the European Union is likely to impact North Africa. In April 2022, the IMF (2022) revised global growth to 3.6 percent in 2022 and the growth in the Euro Zone to 2.8 percent (compared to 3.9 percent in its January 2022 projections). This economic slowdown in Europe would mean a reduced demand for North Africa's exports.

Impact on tourism. In Egypt and Tunisia, tourism from Russia and Eastern Europe is expected to collapse. About 630,000 tourists from Russia and 30,000 from Ukraine visited Tunisia in 2019, making up around 7 percent of total arrivals. Combined with the expected rise in air transport prices, the Russia-Ukraine conflict may further delay the recovery of an already weakened tourism sector.

Debt, capital flows and tightened global financial conditions

North African countries which accumulated public debt during the COVID-19 pandemic should witness rising refinancing costs on their sovereign commercial debt. Egypt, Mauritania, Morocco, and Tunisia have increasingly relied on external financing to meet their financing requirements. Other countries in the region have relied on domestic debt (Algeria, Libya). The Russia-Ukraine conflict again fuels the risk of tightened global financial conditions and reduced capital flows to Africa. For instance, around March 7, 2022, foreign investors fleeing emerging markets following the Russia-Ukraine conflict sold around USD 1.19 billion of Egyptian treasury bonds in just three days. If capital outflows continue, pressure on foreign reserves and the current account could rise significantly.

On the contrary, North African countries endowed with minerals, oil and gas could benefit from FDI flows as potential new markets for investors (Box 1.4).

Box 1.4: Opportunities for the development of the natural gas sector in Algeria

In Algeria, natural gas represents an inestimable economic potential. The International Energy Agency (IEA) ranks Algeria 10th among producers and 7th among exporters of natural gas in the world. National natural gas production represented 2.1 percent of world production, an average of 85 billion cubic meters (m^3) during the period 2005-15. It then increased from 2017 to reach 98 billion m^3 in 2018 and 90 billion m^3 in 2019. A drop was then observed in 2020 due to the COVID-19 pandemic, but the potential is enormous. The commissioning of new fields in the new gas province of southwestern Algeria should contribute to improving the level of natural gas production in the country, with total production estimated at 9 billion m^3 per year.

However, due to the importance of domestic demand, natural gas exports from Algeria are expected to decline. In Algeria, the energy mix is dominated by conventional energy production, from hydrocarbons and especially natural gas, at more than 93 percent. However, national consumption is increasing sharply. Over the 2009-2019 period, it recorded an average annual growth rate of 5.3 percent, rising from 27.64 billion m^3 in 2009 to 46.9 billion m^3 in 2019. According to projections by the Electricity and Gas Regulatory Commission, the natural gas needs of the national market by 2030 could reach 60 billion m^3 in the case of the medium scenario and 72 billion m^3 for the high scenario. After reaching a peak of 65 billion m^3 in 2005, exports stabilized around an average annual volume of 55 billion m^3 until 2016. In 2020, the volumes exported fell again to stand at nearly 40 billion m^3, due to the COVID-19 pandemic and lower liftings from customers in the European region. They would be around 33 billion m^3 by 2030 (55 billion m^3 considering the maturing exploitation projects).

The global gas crisis, following the conflict between Russia and Ukraine, represents an opportunity for Algeria to strengthen efforts to exploit its gas potential. In the gas sector, the disruption of production activities and supply chains caused by the Russian-Ukrainian crisis and the sanctions taken by the international community against Russia, the world's

second largest producer of natural gas, could allow Algeria to better position itself in the international market. As European countries and the United States seek alternative suppliers of natural gas and world prices increased by 192.7 percent between April 2021 and April 2022, Algeria could seize this opportunity to increase its exports and diversify its markets. In Africa, other producers (such as Egypt, Libya, or Nigeria) are already positioning themselves to fill the global supply gap. Thus, the efforts recently made by Sonatrach, Algeria (National Company for Research, Production, Transport, Processing and Marketing of Hydrocarbons) should be supported and strengthened as it plans to spend nearly 40 billion dollars in investing in the sector by 2026, including USD8 billion planned for 2022.

The renewable energy and energy efficiency program revised in 2020 is an important leverage for meeting national demand for natural gas and maintaining a significant level of exports. This program provides for: (i) the establishment of a capacity of 15,000 MW from renewable sources by 2035; (ii) efforts directed towards energy-intensive sectors in terms of energy efficiency; (iii) reforms for the rationalization of subsidies, both on electricity and on gas.

Source: AfDB, information taken from various web sites (https://sonatrach.com, http://www.creg.gov.dz/, www.iea.org and. https://www.bp.com/en/global/corporate/ energy-economics/statistical-review-of-world-energy.html)

CHAPTER 2

CLIMATE RESILIENCE AND A JUST ENERGY TRANSITION IN NORTH AFRICA

Key Messages

- **As in Africa as a whole, North African economies are highly vulnerable to climate change.** Although North Africa is performing better than the other African regions in terms of climate resilience and readiness, the region is getting hotter and drier. It remains strongly exposed to predicted increases in rising temperatures, weather extremes and changes in water availability. Climate change will exacerbate existing water scarcity across North Africa and generate additional vulnerability, with risks compounded by a limited adaptive capacity. Economies are highly reliant on weather sensitive activities such as rain-fed agriculture, livestock production and tourism.

- **Climate change is projected to adversely impact human health and natural systems in North Africa, leading to a severe loss of biodiversity.** Above 1.5°C global warming, half of all assessed species are projected to lose over 30 percent of their population and suitable habitat. Climate change will lead to greater mortality in North Africa in particular for children and the elderly, highlighting the very important interplay between climatic extremes, pollution in urban areas, and health. North African countries are also impacted by rising sea levels and coastal erosion which have already affected important cultural and natural sites.

- **Heat and water stress negatively impact economic welfare, productivity, and food security.** Water supply in the region is low but growing demands have pushed countries further into extreme water stress, with a detrimental effect on North African rural economies and agriculture. Climate change has resulted in an average loss in GDP per capita estimated between 5 and 15 percent annually.

- **A just energy transition is imperative** while the North Africa region has strong potential to develop its capacity in renewable resources such as solar and wind power. Policy frameworks for renewable energy are mostly focused on electricity with ambitious goals to increase the share of renewables. However, North African countries are still far from their established renewable energy capacity targets. Renewable energy installed capacity and energy generation have increased substantially in North Africa in the last 20 years, from 4 492 Megawatts (MW) in 2000 to 10 897 MW in 2021, but fossil fuels still dominate the energy scene. The gap between fossil fuel installed capacity and renewable resources installed capacity remains large and is widening. Of the six North African countries, all but Libya have submitted a Nationally Determined Contributions (NDCs) to the Paris Agreement.

- **Carbon emission debts or credits were estimated for North Africa.** Depending on the price of carbon (at the international average carbon market price or at the social cost of carbon), the North African region is owed a total of USD 47 billion or USD 104 billion respectively to compensate for historical climate damage.

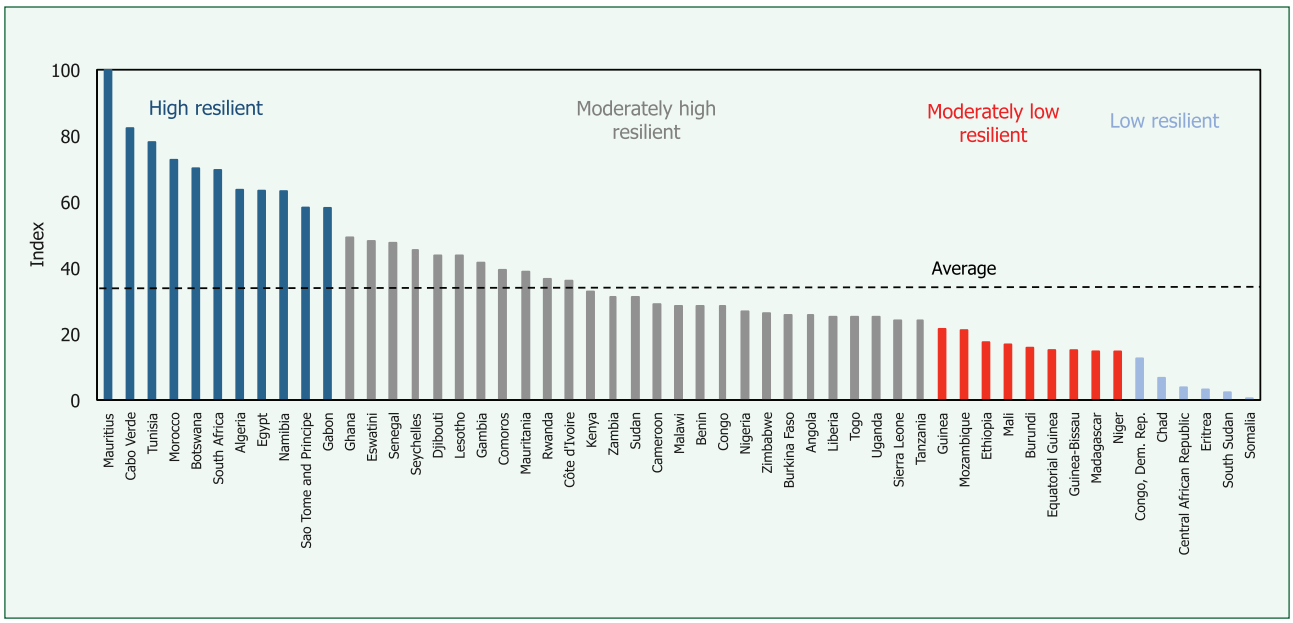
2.1 NORTH AFRICAN ECONOMIES ARE HIGHLY VULNERABLE TO CLIMATE CHANGE

Observed climate change is affecting every inhabited region of the globe and the latest science is clear that more ambition is needed in climate targets [Intergovernmental Panel on Climate Change (IPCC, 2022]. The collective assessment of countries' current Nationally Determined Contributions (NDCs) are predicted to result in 2.4 degrees Celsius (°C) of temperature change above pre-industrial levels (CAT, 2021). This chapter reviews the vulnerability of North African economies to climate change. It then focuses on the imperative of a just energy transition before turning to financing the transition to low-emission, climate-resilient futures in the region.

2.1.1 Climate resilience and readiness in North Africa are better than in the rest of the continent

Africa is warming faster than the global average over land and oceans and North Africa is no exception (AfDB, 2022). According to the Sixth Assessment Report of the IPCC, current predictions are that critical global warming levels will likely be reached earlier than mid-century in Africa. The continent and the North African region are, therefore, exceptionally vulnerable to climate variability and climate change, which affect millions of people and make adaptation efforts more pressing as rapid changes in weather patterns erode the productivity of local water and food systems and generate unintended consequences for sustainable development.

Figure 2.1: Climate resilience score for African countries, average 2010-19

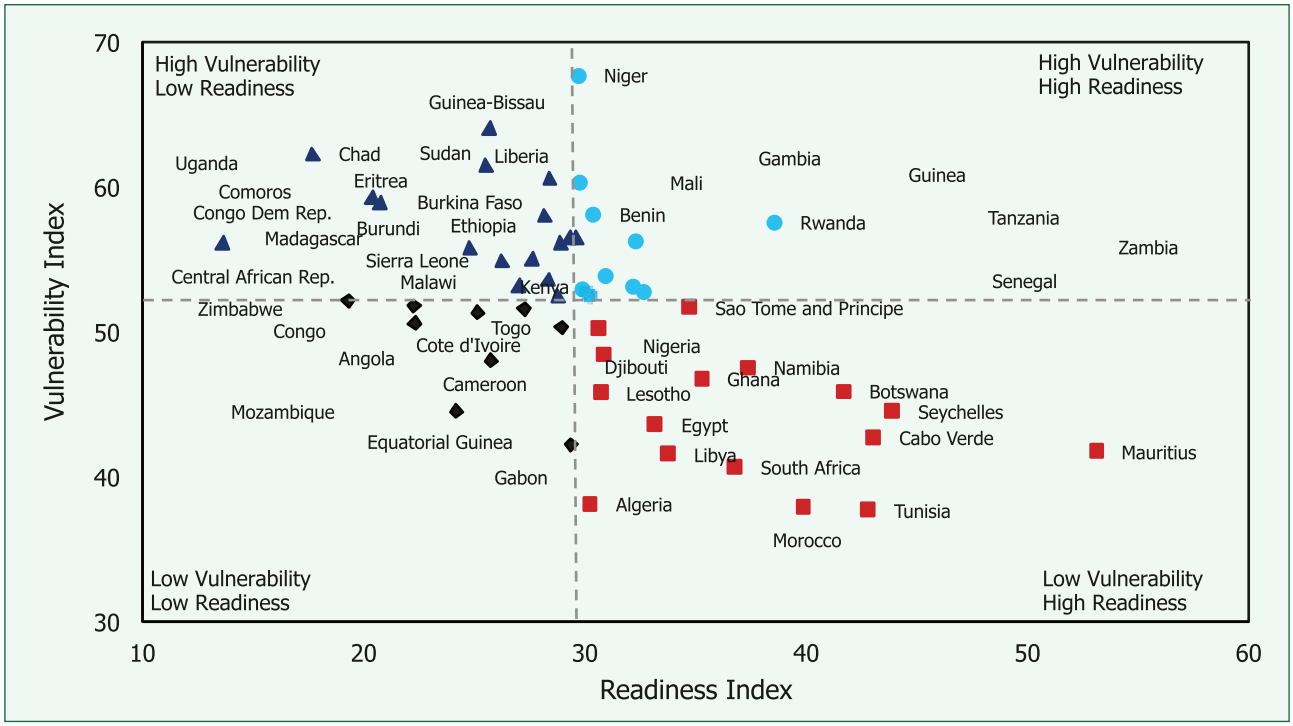


Source: AfDB staff computations.
Note: Data was not available for Libya.

The AfDB (2022) estimates the Climate Resilience Index (CRI). The report shows that in 2010–19, Africa was the least climate-resilient region in the world, with both the lowest median (28.6 out of 100) and mean (34.6) CRI scores, well

behind Europe and Central Asia, the most resilient region to climate shocks. However, during the same period, as compared to sub-Saharan African countries, North African countries were highly resilient with CRI score of 63.5 on average. Algeria, Egypt, Morocco, and Tunisia are classified in the group of highly resilient African countries while Mauritania is "moderately high resilient", and data is not available for Libya (Figure 2.1). North Africa is also one of the least climate vulnerable regions in Africa with a high readiness. The estimated climate vulnerability and climate readiness indices for the region are, respectively, 40.3 and 34.5 on average. Apart from Mauritania, all North African countries are classified in the Low Vulnerability–High Readiness category (Figure 2.2).

Figure 2.2: Classification of countries by climate vulnerability and readiness characteristics, average 2010-19



Source: AfDB staff computations.
Note: The four quadrants are delineated by the median score of vulnerability and readiness indices across all countries over 2010-19.

2.1.2 The North African region is getting hotter and drier

North Africa is highly vulnerable to the consequences of climate change because of its strong exposure to predicted increases in rising temperatures, weather extremes and changes in the availability of water. Economies are highly reliant on weather-sensitive activities such as rain-fed agriculture, livestock production and tourism. Climate change will exacerbate existing water scarcity across North Africa and generate additional vulnerability, with risks compounded by a limited adaptive capacity.

The trend towards warming in North Africa for 1991–2020 has increased compared to the 1961–90 period and is significantly higher than the 1931–60 trend (WMO, 2021).

In the region, mean and seasonal temperatures have increased at twice the global rate (Ranasinghe et al., 2021). For instance, in Tunisia, 2020 was the third hottest year since 1950, after 2014 and 2016, with an average temperature of 20.2°C and a positive anomaly of 0.9°C. This pattern continued in 2021 with increases in temperature that were particularly strong over the summer months (Tanarhte et al., 2021) with record temperatures measured during the summer 2021, at Ouargla, Algeria (51.3°C) and Kairouan, Tunisia (50.3°C).

Rainfall patterns have also been more variable and water scarcer. Mean annual precipitation decreased over most of North Africa between 1971–2000 (Donat et al., 2014a; Hertig et al., 2014; Nicholson et al., 2018; Zittis, 2018), with a gradual recovery to normal or wetter conditions in Algeria and Tunisia since 2000 and in Morocco since 2008[9] (Nouaceur and Murărescu, 2016). Droughts have increased in frequency in comparison to the 1960s. There has been a decrease in days with more than 10 millimeters (mm) of rainfall and the incidence of consecutive dry days has increased in the eastern parts of North Africa, while in the western parts of North Africa heavy rainfall and flooding have increased (Donat et al., 2014a). Droughts also last longer.

Box 2.1: Measures to address Morocco's exceptional drought in 2021-22

As all North African economies, Morocco is a water-stressed country. Its water resources are limited and unevenly distributed geographically and throughout the year, which at times implies shortages. From 1950 to 2010, water availability per capita decreased by 71.5 percent to 632 m^3/person/year which is below the water stress threshold (1 000 m^3/pers./year) and close to the absolute scarcity threshold of 500 m^3/pers./year. In addition, agriculture which is highly dependent on rainfall, uses more than 80 percent of Morocco's water resources.

While the 2020-2021 agricultural season and its harvest proved exceptional given abundant rainfalls, the 2021-2022 harvest has been hampered by an exceptional drought. The data recently released by the Directorate General of Meteorology (DGM), indicated that the average cumulative rainfall recorded at the national level from September 1, 2021, to January 3, 2022, represented 38.8 mm, against a 1981-2010 average of 106.8 mm for the same period, which is a drop of 64 percent. As compared to the 2020-21 season, the rainfall deficit is at 53 percent. At the end of February 2022, the reservoirs of the 140 dams reached around 5.3 billion cubic meters (m^3, or a filling rate of about 32.7 percent against 49.1 percent the previous year at the same period.

Following instructions of His Majesty King Mohammed VI, the government launched a swift emergency plan aiming to mitigate the impact of the drought and aid farmers and breeders. The program, amounting to 10 billion dirhams (equivalent to EUR 1 billion), focuses on three main areas: (1) protecting animals and plants from the drought and managing water scarcity; (2) providing agricultural insurance and alleviating farmers' financial burdens; (3) financing innovative irrigation investments and operations to supply the national market in wheat and fodder. The first area of action for this programme entails the distribution of subsidized barley for livestock farmers and compound feed for dairy farmers, addressing the rising prices of feed and the scarcity of fodder. It also includes the vaccination and treatment of 27 million heads of sheep and goat, 200 000 heads of camels and the treatment of bees against varroa, the rehabilitation of small and medium hydraulic perimeters, the development and equipment of water points allowing for the watering of livestock and the irrigation of newly planted orchards. The second axis of the program focuses on the acceleration of the implementation of drought insurance for farmers for a capital insured by farmers. Whilst the purpose of the third axis, is to reschedule the farmers' debts. The first leg of this program totaling EUR 300 million is financed by Hassan II Fund for Economic and Social Development.

[9] Morocco is currently experiencing its worst drought since the 1980s, with severe drinking water shortages predicted in addition to impacts in the country's agricultural sector (Box 2.1).

2.1.3 North African countries are also impacted by rising sea levels

Rising sea levels and coastal erosion has already affected important cultural sites (Abutaleb et al., 2018; IPCC, 2019a). For instance, the Ounga Byzantine Fort and its associated archaeological remains in Tunisia, and the Sabratha, an ancient Roman City on the Libyan coast, have experienced various damages and losses. Worsening climate impacts can exacerbate the vulnerability of cultural heritage sites and nature conservation areas. Reinmann et al. (2018) identified several World Heritage Sites that projected a medium to high risk of erosion. Further, Brito and Naia (2020) list several high biodiversity natural heritage sites that will be affected by the rise in sea level by 2100 (RCP8.5[10]). Table 2.1 presents the list of North African cultural and natural sites exposed to risks.

Table 2.1: Cultural and natural sites exposed to sea level rise and erosion in North Africa

Country	Cultural Sites	Natural sites of conservation priority
Algeria	Tipasa (high risk) Kasbah of Algiers (high risk)	
Mauritania		Diawling national park
Tunisia	Punic town of Kerkuane and its Necropolis (high risk) Archeological site of Sabratha (high risk) Archeological site of Leptis Magna (high risk) Medina of Tunis (high risk) Archeological site of Carthage (medium risk) Medina of Sousse (medium risk)	Lagune de Ghar el Melh and Delta de la Mejerda Sebkhet Soliman Ramsar site Sebkhet Halk Elmanzel and Oued Essed Ramsar site Boughrara Lagoon Ramsan site

Source: AfDB based on IPCC (2022), Chapter 9, p. 144.

2.1.4 Climate change is projected to adversely impact human health and natural systems in North Africa

The United Nations Intergovernmental Panel on Climate Change (IPCC 2022) forecasts that in a scenario of above 2°C global warming, North Africa will experience increased droughts that will last longer than in the past (medium confidence). The increase in the length of dry periods is likely to be from 2 to 4 months. Reduced mean annual rainfall is projected over coastal North Africa, with drought also resulting from increasing atmospheric evaporative demand due to higher temperatures (Ukkola et al., 2020; Ranasinghe et al., 2021; Seneviratne et al. 2021). Heat waves on land and in the ocean, will increase considerably in magnitude and duration with increasing global warming (very high confidence).

[10] Representative Concentration Pathway (RCP) 8.5 is the worst scenario. It represents the concentration of carbon due to global warming at an average of 8.5 watts per square meter on Earth. RCP 8.5 is expected to lead to a temperature increase of about 4.3°C by 2100, as compared to pre-industrial temperatures.

Considering a 1.5°C and a 2.5°C scenarios, the impacts of climate change will be felt on key agricultural products, such as olives in Algeria, and sunflowers in Morocco. Above 2.5°C, most staple crops in the region will be negatively affected.

Ecosystems are also adversely affected by climate change, leading to a severe loss of biodiversity and ecosystem function: future climate change is projected to reduce the abundance of species and habitat suitability. The IPCC report (2022) highlights that above 1.5°C global warming, half of all assessed species are projected to lose over 30 percent of their population and suitable habitat, with losses increasing to over 40 percent for a temperature scenario above 3°C.

Climate change will lead to greater mortality in North Africa, in particular for vulnerable people. Bettaieb et al. (2020), using daily time series of mortality counts, weather and air pollution data collected in the city of Tunis shows that there are important short-term effects of heat on total mortality. A 1°C increase in max temperature above 31.5°C, significantly increased the mortality from all causes by 2 percent. Air pollution in urban areas can also substantially exacerbate the impact of heat on mortality. Bettaieb et al. (2020) estimate that an increase of 1°C at maximum temperature will increase the daily rate of mortality by an extra 0.58 percent. These results are more relevant for children in the 0–14 age group and the elderly and highlight the very important interplay between climatic extremes, pollution in urban areas and health (Abera et al., 2021; Westervelt et al., 2016; Silva et al., 2017).

Moreover, climatic variability can have adverse health effects via the increase in heat-related diseases such as dengue, and malaria. IPCC (2022) projected the numbers with increasing global warming in a 1.5°C scenario.

It is estimated that under a (conservative) 1.5°C scenario, children born in Africa in 2020 are likely to be exposed to 4–8 times more heat waves compared to people born in 1960. With the scenario of an increase of 2.4°C, this exposure will be 5-10 times more. Exposure to drought and its economic implications during childhood are also important for the growth of children (Hodinott and Kinsey, 2001). Poor nutrition and under-nutrition associated with increasing heat and weather extremes is likely to imply that children's growth will be stunted. In North Africa a decrease in mean child HAZ scores (a standardized measure of the heights of children and a common indicator of stunted growth) are expected during drought conditions (Cooper et al., 2019). In North Africa, increasing temperatures combined with a reduction in rainfall are likely to increase particulate matter concentrations thus affecting air quality and increasing health related issues (Abera et al., 2021; Westervelt et al., 2016; Silva et al., 2017).

2.1.5 Heat and water stress negatively impact economic welfare, productivity, and food security

Both geographic and economic characteristics make the African continent particularly vulnerable to climate change. The continent has higher temperatures and more frequency of extremes than any other continent. This, compounded by a low adaptive capacity and economies exposed to weather sensitive activities, creates a situation of high vulnerability to climate change.

Econometric studies showed that rainfall and temperature anomalies experienced in Africa have a strong and negative impacts on both the level of GDP per capita as well as GDP growth (Mendelsohn et al., 2006; Barrios et al. 2010; Dell et al., 2012). These aggregate economic impacts occurred largely through losses in agriculture (Burke et al., 2015b; Carleton et al., 2016 Acevedo et al., 2017).

The negative effect of climatic anomalies on GDP growth is particularly relevant for emerging and developing economies. Accelerating levels of growth and development across the continent will be hampered by the increasing frequency of extremes. Lower growth today implies less welfare in the future. Box 2.2 reports the effects of climatic anomalies on North Africa's GDP.

Box 2.2: The impact of rainfall anomalies on North Africa's agricultural share in GDP: a Panel data analysis

We combine country data on monthly rainfall during the agricultural growing season from the *World Bank Group, Climate Change Knowledge Portal,* with country data from the African Development Bank (AfDB) for the period 1960-2019 to estimate the impact of rainfall anomalies during the main growing season in North Africa. Rainfall anomalies are expressed as the deviations from the country's long-term mean (60 years) divided by its long-run standard deviation. Importantly, rainfall anomalies during the growing season indicate how unusually dry (or wet) was the weather in a given season compared to the trend in the long run (Barrios, Bertinelli and Strobl, 2010). We assign a dummy variable that takes the value of one when a country experiences one standard deviation less or one standard deviation more of rainfall compared to long term rainfall during the main growing seasons (winter and spring). Given the nature of the data (repeated observation of the same units across time), we used a Panel Fixed Effects estimator. Results highlight that rainfall conditions that are not good for crops have important implications for the contribution of agriculture to welfare. Experiencing a rainfall anomaly during winter reduces the agricultural share by almost half a percentage point. This coefficient is also highly statistically significant. If we also consider rainfall anomalies during Spring the reduction is of about 0.37 percent. Albeit this estimate displays much larger standard errors, the coefficients are statistically jointly different from zero.

Micro econometric studies identifying the effects of climatic shock and anomalies on agricultural productivity and food security have confirmed the aggregate results by consistently identifying the detrimental impact of adverse climatic conditions on rainfed agricultural systems in Africa (Schlenker and Lobell, 2010, Di Falco et al., 2011; Jaramillo et al., 2011; Lobell et al., 2011; Di Falco et al. 2012). Besides its direct impact on the agricultural sector, climatic shocks are found to also be negatively correlated with labor supply and productivity in other important economic sectors including, manufacturing, industry, and services (Graff Zivin and Neidell, 2014; Somanathan et al., 2015; Day et al., 2019; Nath, 2020).

Table 2.2: Future increase in the frequency of droughts and floods have important economic implications for agricultural production and its contribution to the GDP of the region

Negative rainfall anomaly in Winter	-0.41**
	(0.21)
Negative rainfall anomaly in Spring	-0.37
	(0.29)
North Africa average Agricultural Share of GDP in percentage	13%
adj. R^2	0.89
F test for joint significance of rainfall anomalies: 4.07	Prob > F = 0.08
N : 180. Significance levels: * p < 0.10, ** p < 0.05, *** p < 0.01. Panel data estimator with country and year fixed effects included. Small cluster corrected standard errors in parentheses. Results are conditional on max temperatures January to April. Libya is not in the sample.	

Source: AfDB based on data from the World Bank Climate Change Knowledge Portal, available at: https://climateknowledgeportal.worldbank.org/country/tunisia/climate-data-historical

The IPCC (2022) reports that in Africa, climate change is reducing crop yields and productivity (medium confidence). Agricultural productivity growth has been reduced by 34 percent since 1961 due to climate change, more than any other continent. In North Africa, livelihoods and economic welfare are strongly dependent on agriculture. There is an increase on water demand that is triggered by climate change and extreme events. This in turn affects welfare and food security in the region (high confidence) (Mohmmed et al., 2018; Khedr, 2019).

Water supply in the region is low but growing demands have pushed countries further into extreme water stress. Climate change is set to exacerbate this situation. The World Bank found that the North Africa region has among the largest expected economic losses from climate-related water scarcity with Libya listed as being under extremely high water-stress, and Algeria, Egypt, Morocco, and Tunisia being listed as being under high water stress (World Bank, 2017). This has augmented the fragility of the irrigation sector (Verner et al., 2018; İlseven et al., 2019), with large impact on both crop and animal production (Mohmmed et al., 2018; Verner et al., 2018). For example, dairy farms in Tunisia have seen their production efficiency decreased and costs increase as result of the effect of extended periods of warm temperatures requiring greater levels of drinking water because of increased heat stress on cows (Amamou et al., 2018).

Climate change resulted in average annual losses in GDP per capita growth. Recently, Baarsch et al. (2020) and the AfDB (2022) estimated a 5-15 percent loss in the African share of GDP per capita growth as result of climate-induced shocks for the period 1986-2015. At the level of countries, the estimated annual loss in GDP per capita growth for North African countries is equivalent during the same period. Again, the exposure to weather sensitive activities is the main driver of these losses. In a very important way, rainfall anomalies in North Africa impact the contribution of agriculture to the overall GDP (Box 2.2). Furthermore, this economic cost of climate change is projected to be much higher in the next few decades. The African Economic Outlook (AfDB 2022) estimates show that the high warming scenario will have particularly severe consequences for African economies. The reduction in GDP per capita growth in the high warming scenario is projected at 16–64 percent by 2030. In addition to macroeconomic impacts, climate change has significant impacts on socioeconomic outcomes. These include increased risk of mortality, morbidity, high risk of resource-related conflicts, internal displacement, and migration. Exposure to climate hazards can trap poorer households in a cycle of poverty (Dercon and Christiaensen, 2011; Sesmero et al., 2018) as poor people in Africa are often more exposed to climate hazards than non-economically vulnerable people.

Recurrent climate shocks may have a detrimental effect on African rural economy by reducing the propensity to invest in productive assets. Di Falco et al. (2019) showed that climatic anomalies may affect productive assets accumulation in agriculture by making famers more present oriented and less patient. This reduced the profitability of economic investment that provide benefits in the medium and longer run and costs in the short term (e.g., investment in soil conservation). Climate change can also negatively affect the number of households in poverty through its impact on inflation as well as accumulation of assets or ability to invest in new assets, thereby reducing productivity (Hallegatte et al., 2016).

It is of paramount importance to increase the adaptive capacity of agricultural systems in North Africa and foster economic diversification of the region to build economies that are resilient to climate shocks. Building climate resilience involves synergies with considerable mitigation co-benefits. As discussed in the African Economic Outlook (AfDB 2022), examples of building climate resilience include climate-smart agricultural practices and low-cost but effective technologies such as water harvesting and small-scale irrigation techniques, land and water conservation and management strategies, and minimum or zero tillage agriculture with high net returns to farmers—and even higher when farmers adopt complementary technologies. Building resilience also requires transformative changes with support from the public sector. Among the many challenges in building climate resilience is access to modern energy. As extreme weather events become more frequent and intense, the installation of residential and

workplace climate control systems is important for building climate resilience among households and businesses requiring modern energy, but such efforts are held back by Africa's low modern energy production and consumption. Energy is vital in building resilience for key productive sectors of African economies, including agriculture, where changing patterns in rainfall and temperature threaten output and productivity. Unfortunately, Africa's low level of access to modern energy presents a significant challenge and dilemma in its quest to build climate resilience.

2.2 THE IMPERATIVES OF A JUST ENERGY TRANSITION IN NORTH AFRICA

The North Africa region has strong potential to develop its capacity in renewable resources such as solar and wind power, that can also counter the effects of the volatility in oil prices and achieve the Sustainable Development Goal (SDG) 7 on clean and affordable modern energy sources. Transitioning the energy sector from one resource base to another – namely from fossil-based to renewable-based – is not only central to mitigating the impact of climate change globally, but also for North Africa to meet its climate change targets. North Africa is considered to have the potential to be a future hub for renewable resources with the potential to build huge capacity and then transport solar energy to Europe and other parts of the World (Timmermans, 2019). Yet the energy mix remains strongly dominated by coal, oil, and gas. Fossil resources have long been a central element in the economic growth for North African countries, notably Algeria, Libya, and Egypt (IEA, 2020).

Of the six North African countries, all but Libya have submitted a Nationally Determined Contribution (NDC) to the Paris Agreement[11]. Mauritania, Morocco, and Tunisia updated their NDCs in 2021 and Egypt, in July 2022. Algeria has not yet updated its NDC since its 2017 submission. In early 2022, Egypt launched its National Climate Change Strategy 2050. Morocco also submitted a long-term strategy: a country articulation of climate objectives till 2050. COP26 called for all countries to update their NDCs by the end of 2022 and countries resolved to pursue efforts to keep temperature increase within 1.5°C of warming (UNFCCC, 2021a). Keeping within this temperature target is increasingly understood to be that at which a stabilization of greenhouse gas concentrations in the atmosphere is most likely to prevent dangerous anthropogenic interference with the climate system as called for by the United Nations Framework Convention on Climate Change (UNFCCC).

North Africa's policy frameworks for renewable energy are mostly focused on electricity with ambitious goals to increase the share of renewables. Globally electricity production accounts for a quarter of all greenhouse gases. While industry and transport remain significant contributors to emissions globally (21 percent and 14 percent respectively), renewable energy often remains foundational to other sectoral transitions. Buildings use more than half of all energy created, in addition to generating emissions through their direct emissions through their heating and cooling, for example, while transition in fossil fuel-based road transport for people and goods relies predominantly on electrification.

North African countries are still far from their established renewable energy capacity targets. North African countries all have long-term targets for increasing renewable electricity capacity. In 2030, Algeria targets 22 GW, Mauritania 13 GW, Morocco 10 GW, Libya 4.6 GW and Tunisia 2.8 GW of installed electricity capacity, while Egypt targets 54 GW by 2035 (Table 2.3). These targets coupled with several support policies and enabling regulatory frameworks are expected to add more than 10 GW of renewable capacity by 2024, effectively doubling the region's installed capacity to over 20 GW. More

[11] An NDC represents each country's public articulation of its climate targets and objectives till 2030, with a view to collectively raising ambition to reach the Paris Agreement's temperature goals.

than 75 percent of the growth is from support policies and regulatory frameworks that attract and enable private investment from Independent Power Producers (IPPs). This includes competitive auctions, Feed in Tariffs, unsolicited bilateral contracts between the IPP and the utility, and corporate Power Purchase Agreements (PPAs).

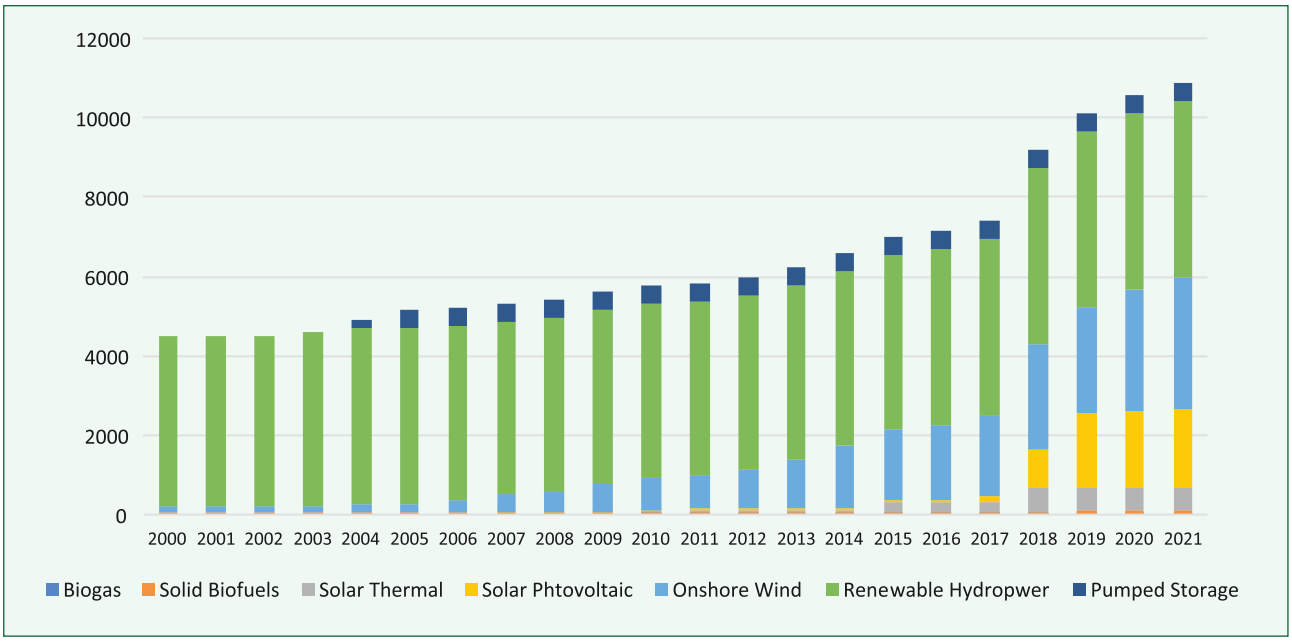
Table 2.3: Renewable installed electricity capacity and targets in Gigawatts (GW)

	Algeria	Egypt	Libya	Mauritania	Morocco	Tunisia
Renewable installed electricity capacity in 2021	0.7 GW	6.22 GW	0.006 GW	0.08 GW	3.5 GW	0.4 GW
Targets	22 GW by 2030	54 GW by 2035	4.6 GW by 2030	13 GW by 2030	10 GW by 2030	2.8 GW by 2030

Source: AfDB compilation based on IEA (2020) and. https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Mauritania%20First/CDN-actualis%C3%A9%202021_%20Mauritania.pdf

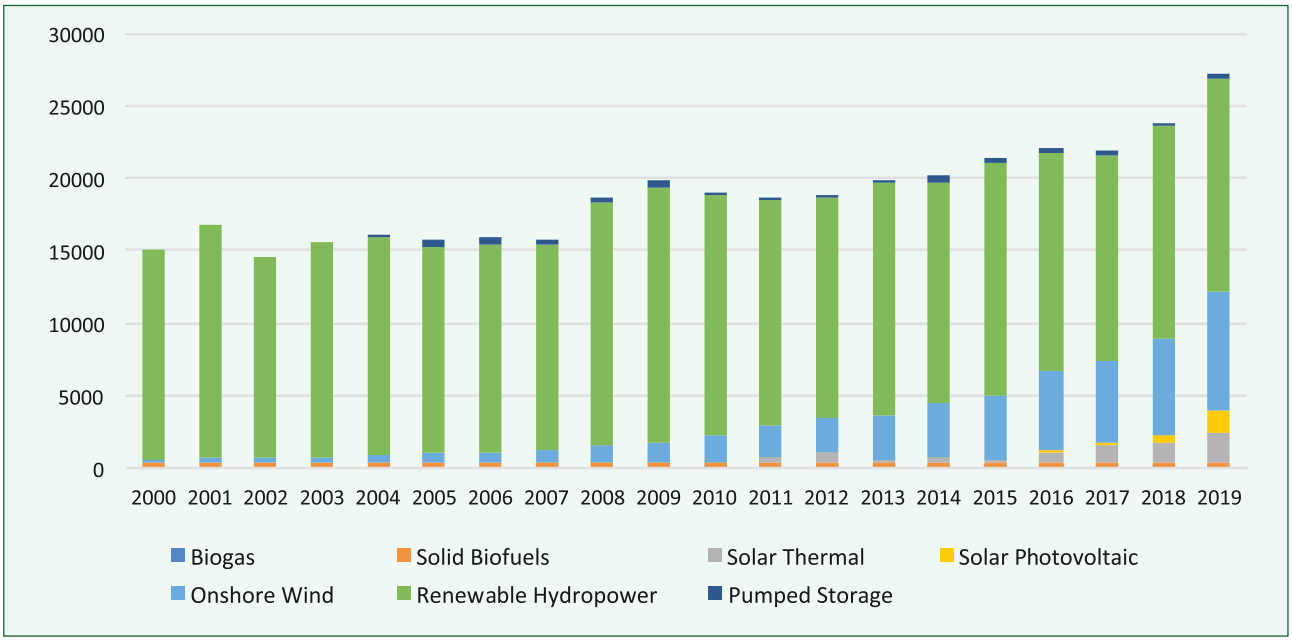
Renewable energy installed capacity and energy generation have increased substantially in North Africa in the last 20 years, but fossil fuels still dominate the energy scene. Renewable resources Installed capacity indeed increased from 4 492 MW in 2000 to 10 897 MW in 2021. Figure 2.3 shows the increase in installed renewable energy capacity driven mostly by expansion in solar and wind power generation. Regarding the installed capacity, for instance, in Algeria, solar power is now the primary renewable energy source taking over from installed capacity in hydropower, while wind power has become dominant in Tunisia. The trend for the cumulative electricity generation also shows an important increase. Energy generation from renewables has indeed increased from 15 000 Gigawatt hours (GWh) in 2000 to 27 616 GWh in 2019 (Figure 2.4).

Figure 2.3: Trends in renewable energy in North Africa, installed capacity on-grid (in Megawatts)



Source: AfDB elaboration using International Renewable Energy Agency (IRENA) dataset available on: https://www.irena.org/Statistics/View-Data-by-Topic/Capacity-and-Generation/Statistics-Time-Series

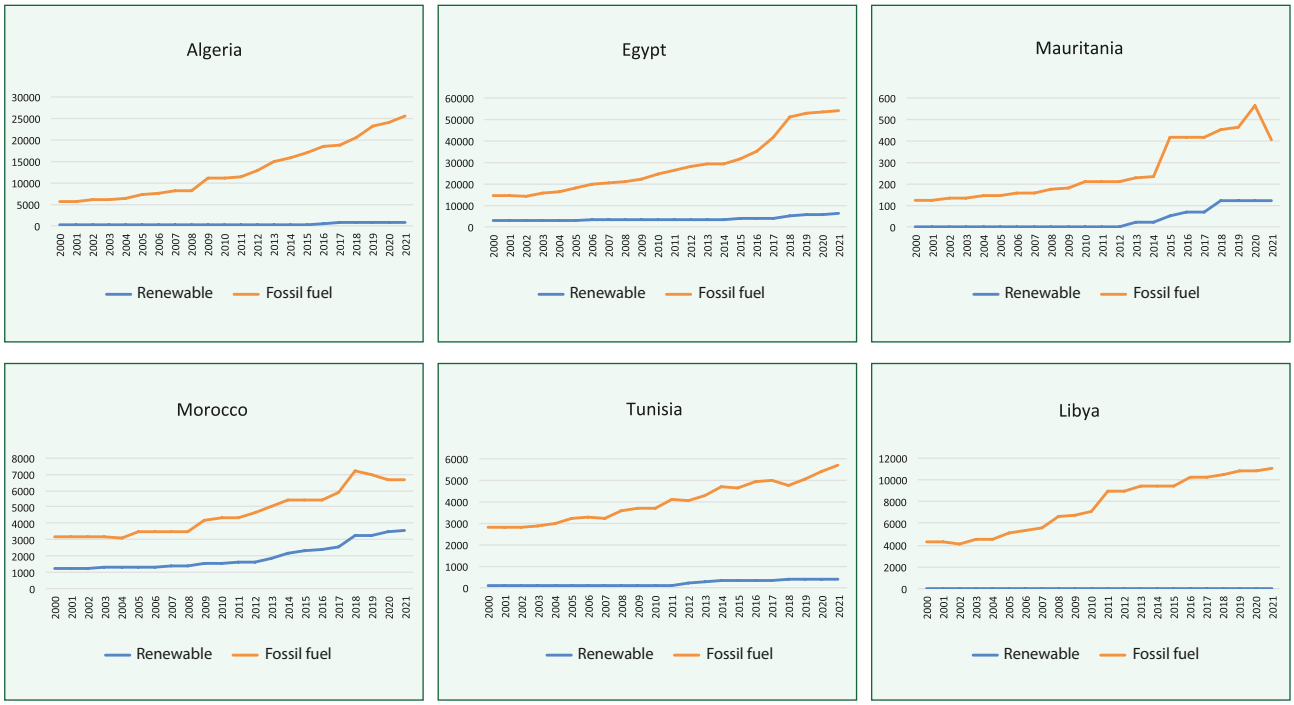
Figure 2.4: Electricity generation from renewable resources in North Africa (in GWh)



Source: AfDB elaboration using IRENA dataset available on: https://www.irena.org/Statistics/View-Data-by-Topic/Capacity-and-Generation/Statistics-Time-Series

The gap between fossil fuel installed capacity and renewable resources installed capacity remains large and is widening. While trends in cumulative installed renewable energy capacity are encouraging, they do not necessarily reflect a transition when compared to the growth in installed capacity for fossil fuels. Figure 2.5 shows that fossil fuel capacity still dominates in all North Africa countries, although variable in trends and degree.

Figure 2.5: Installed electricity capacity is growing faster for fossil fuels than renewables
Installed capacity in megawatts (MW)

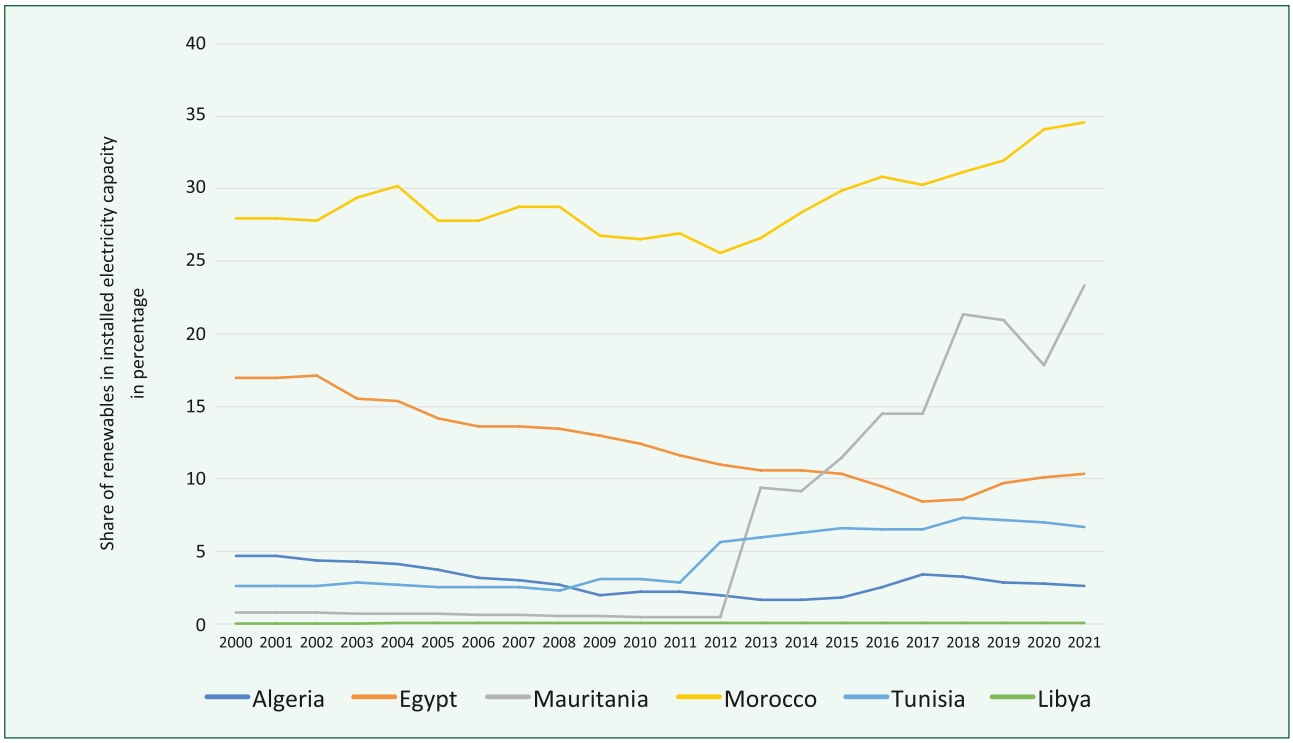


Source: AfDB based on 2022 IRENA dataset, available on:
https://www.irena.org/Statistics/View-Data-by-Topic/Capacity-and-Generation/Statistics-Time-Series

Algeria, Egypt, Libya, and Tunisia display a very large and widening gap between renewable and non-renewable installed capacity while Morocco and Mauritania show different patterns. In the last few years, the installed capacity in fossil fuels has declined, while that in renewable has increased sharply.

Figure 2.6 further illustrates how the share of renewables in the installed electricity capacity has changed over time in North Africa. In the case of Egypt, it shows how the expansion in fossil fuel capacity has remained relatively larger than the capacity in renewables, while Libya has negligible installed capacity for renewables. Mauritania planned investments in national electricity capacity, including several new wind and solar projects, that would increase the contribution of renewables to 36 percent of capacity by 2020 and 41 percent by 2030 (IRENA, 2015). Figure 2.6 shows that as 2021 the installed capacity has ramped up to about 23 percent.

Figure 2.6: Share of renewables installed electricity capacity in percentage



Source: AfDB based on 2022 IRENA dataset, available on: https://www.irena.org/Statistics/View-Data-by-Topic/Capacity-and-Generation/Statistics-Time-Series

As noted above, renewable energy is the foundation of the energy transition in other sectors:

- In North Africa the expansion of the transport sector can be seen as driving growth in exports, job creation and economic inclusion. Private vehicles are the dominant form of road transport (IEA, 2020). The electrification of road transport will greatly influence the region's energy transition. While electric vehicles (EV) will increase the demand for electricity, they will also decrease oil demand. The integration of renewables in electricity production is critical, noting that the EV revolution still requires global investment in scaling up battery production, shifting vehicle manufacturing processes and deploying an EV charging infrastructure [Det Norske Veritas (DNV), 2020].

- Egypt, Morocco, and Tunisia have well-developed industrial sectors, including high emitting chemical processing, construction materials, and automobile manufacturing. Industrial processes and manufacturing remain hard-to-abate emissions. Emission savings often refer to improved efficiency, circular economy and/or recycling of materials (such as steel) and new technologies and processes that require lower temperatures in production. Technological innovations are first needed in the use of hydrogen for industry, for example, and frameworks fostered through which to integrate developments and/or create opportunities for research and innovation to accelerate transition in these sectors.

Energy efficiency remains a critical need in North Africa where progress has been stagnant (IEA, 2020). Without energy efficiency, it is predicted that global energy demand will increase by 65 percent in 2050 (DNV, 2020). Energy efficiency gains in North Africa can be achieved in industry, transport and building sectors, with the potential to also deliver jobs. Such

efficiency is also important under increased intermittent renewable energy sources in the electricity mix: reducing demand and concurrently improving demand-side management (IEA, 2020).

All North African countries placed restrictions and other COVID-19 limiting policies in place as the global pandemic took hold (AfDB 2021). As the demand for oil declined through global shut-downs – as oil use from transport and industrial sectors declined – government revenues in Algeria and Libya declined. In 2020 the IEA reported a decline in oil and gas income of 75-90 percent in Algeria and Libya, with knock-on effects on reserves and the ability of governments to provide essential services in health care, education, and sanitation, as well as for wider spending on future generation capacities (be they renewable or otherwise). These figures illustrate the risks and the opportunities for renewable energies and energy efficiency measures to be supported and create jobs (IEA, 2020).

Box 2.3: Strategic contribution of the African Development Bank to climate, energy, and food issues in Tunisia

The consequences of the COVID-19 pandemic and then of the Russian-Ukrainian conflict underline the pressing need to strengthen resilience to climate, energy, and food issues. Tunisia is very exposed to the impacts of climate change in a context of water stress. Agriculture is highly dependent on rainfall conditions, which poses risks for food security, especially in times of drought. In addition, Tunisia must secure the availability of energy at a lower cost, limit the weight of subsidies on energy consumption and achieve its energy transition. In a recent study entitled "Contribution of the African Development Bank to Tunisia's new development strategy" (AfDB 2021a), a three-pronged strategy is proposed to meet these challenges: (i) the effective management of water resources, (ii) the efficient exploitation of energy potential and energy transition, and (iii) the modernization of the agricultural sector.

In Tunisia, water availability is less than 500 m³ per inhabitant per year. The AfDB puts forward several proposals to effectively manage water resources, such as the use of digital and cartographic tools for water resources planning and management and the use of new technologies to optimize the irrigation. It advocates the treatment and reuse of wastewater and the establishment of incentives to generate responsible behavior among users. It also supports the adoption of a new water code which will be based on the adaptation measures proposed by the "Water 2050" study, such as the mobilization of unconventional water (rainwater, water desalination sea, etc.).

Tunisia's energy deficit represented 40 percent of its trade deficit in 2019. In Tunisia, nearly 97 percent of electricity is produced from fossil fuels, more than two-thirds of which are imported. Faced with these challenges, Tunisia launched the "Tunisian Solar Plan" which aims to achieve 30 percent renewable energies in the energy mix and reduce its carbon intensity by 41 percent between 2010 and 2030. To support this effort, the Bank recommends (i) reviving gas exploration and production, (ii) developing local skills in the field of renewable energies, (iii) rationalising the growth in energy demand, (iv) increasing the penetration of renewable energies in all sectors, and (v) modernize and expand the capacity of energy production, transport, storage, and distribution infrastructure.

While climate change could lead to the loss of approximately 37,000 jobs and 5 percent to 10 percent of added value in the agricultural sector by 2030, agricultural innovations taking into consideration water stress and improved positions on value chains will promote the viability of the Tunisian agricultural sector. The Bank proposes to promote the use of digital technologies in agriculture allowing the early detection of diseases and the optimization of costs and to strategically choose the crops to be promoted to ensure food sovereignty. It stresses the importance of supporting agricultural transformation and the promotion of value chains, of creating agricultural training centers in partnership with the private sector and of investing in specific infrastructure in agricultural regions (rural tracks, water reservoirs, etc.).

Food and energy issues cannot be addressed independently of climate issues. The Bank contributes to the fight against climate change and adaptation to its effects in Tunisia by financing technical assistance and the following projects: (i) the "Kairouan Solar Power" project, (ii) technical assistance to the Tunisian Solar Plan, (iii) a donation to the municipality of Tunis for solid waste management, (iv) a preparatory study for the implementation of an energy efficiency system for the Bab Saadoun medical complex, as well as (v) the “Project to improve the quality of treated water – Phase II” which will allow the treatment and reuse of treated wastewater in agricultural irrigation.

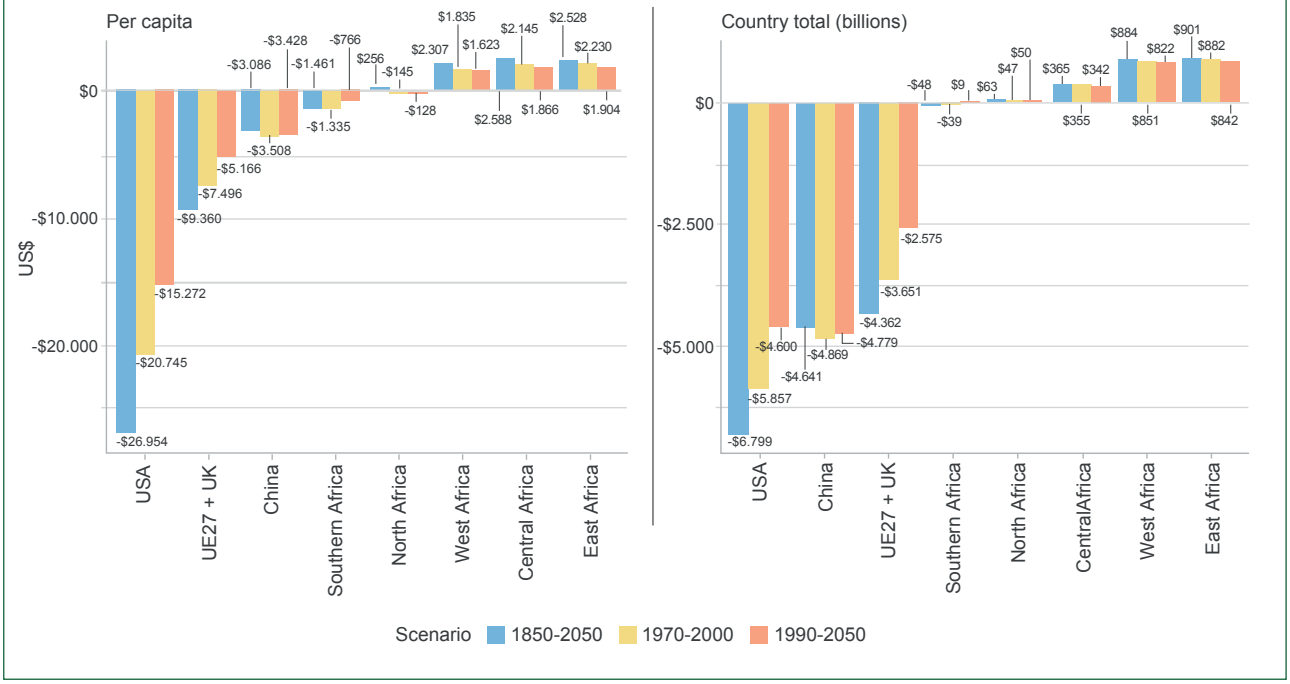
2.3 ESTIMATING CARBON EMISSION DEBT OR CREDIT IN NORTH AFRICA

To meet the net-zero emissions target by 2050, it is important to allocate the remaining carbon budget set out by the IPCC in a way that meets the equitable and fair global commitment (AfDB 2022). However, there is no universally agreed carbon allocation framework that accounts for or offers a just balance between countries’ historical responsibilities and other countries’ development needs. Although there are several approaches in the literature, the African Economic Outlook (AEO) 2022 adopted a pragmatic approach of a “contraction and convergence” framework (Meyer, 1999). This approach proposes a two-phased future emission rights allocation that balances environmental effectiveness, equity, national capacity and ability, political feasibility, economic efficiency, and technical requirements.

One of the most important issues in global climate commitments to limit temperature increases to 1.5°C and in climate finance negotiations, is attributing the amount of carbon that countries emitted in the past and allocating the remaining carbon budget. The global consensus seems to be that by limiting future emissions and setting commitments equitably, including those for finance, countries can quantify the “common but differentiated responsibilities” of countries for historical climate damage. AfDB (2022) refers to this monetary amount as carbon debt or credit. As discussed in the 2022 AEO, the IPCC puts cumulative carbon dioxide (CO2) emissions at around 2 400 gigatons of carbon dioxide equivalent (GtCO2 eq), the estimated remaining carbon budget from the start of 2020, with a 67 percent chance of limiting temperature increases to the 1.5°C target by 2050, is only 400 GtCO2 eq. However, almost all carbon emissions have come from industrialised countries, with the developing world emitting very small. The carbon footprint of the African continent was only 132.6 GtCO2 in 2020, which is much smaller compared to developed nations such as the United States and China whose carbon footprint was 471.3 GtCO2 and 1066.8 GtCO2 respectively.

To quantify the amount of carbon debt and credit, we used the 2020 average international energy market carbon price of USD 31 a ton and the average social cost of carbon of USD 70 per ton suggested by the High Commission on Carbon Prices and used the suggested 2 percent per year discount rate for historical and future emissions. We also deducted the 2 tCO2 eq per capita per year equal share from the actual annual per capita emissions before computing the per capita carbon debts and credits. Figure 2.7 shows the discounted cumulative per capita carbon debts and credits at a discounted international average carbon price of USD 31 per ton for three periods: 1850-2050, 1970-2050, and 1990-2050. The estimates vary widely depending on historical per capita emission levels: emerging and developing regions have carbon credits, but almost all the developed regions including China, have large carbon debts. Africa’s estimated per capita carbon credits are USD 1 050–USD 1 570, which are the amounts that an average person in these regions is owed. The estimated carbon credit at international average carbon market price for North Africa is USD 47 billion. On a per capita basis, the estimated carbon emission amount ranges between a debt of USD 128 and a credit of USD 256.

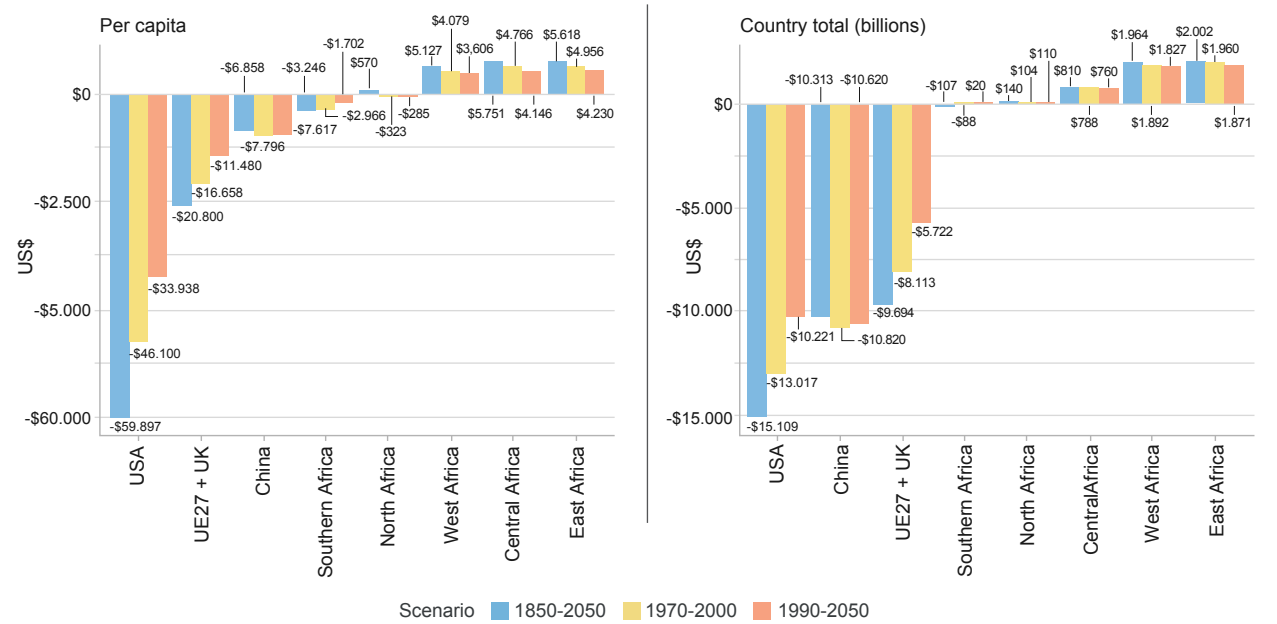
Figure 2.7: Cumulative carbon emission debt at international average price of USD 31 per tCO2



Source: AfDB calculation.

Market prices are, however, distorted on the global commons—as are carbon emissions—due to inherent market failures. To measure the true extent of cumulative damage to the climate, we used the discounted average social cost of carbon, finding that cumulative per capita social carbon debts and credits are more than double the amount using market prices (Figure 2.8). The estimate shows that Africa has a total carbon credit of USD 4.58–USD 4.8 trillion, averaging USD 4.64 trillion, a credit that considers historical, current, and future shares of carbon emissions. Paid annually over 2022–50, this comes to about USD 165.8 billion a year, with lower and upper amounts of USD 163.4 billion and USD 173 billion. The amount of carbon credit that the continent is owed is, therefore, almost 10 times as much as the global climate finance that it received, which was around USD 18.3 billion annually in 2016–19. At the regional level, the estimated carbon amount using discounted social cost of carbon for North Africa ranges between a debt of USD 570 and a credit of USD 285 on a per capita basis. This implies that the country is owed USD 104 billion. Compensated annually over 2022-50, North Africa should receive an estimated USD 3.7 billion per year in climate change compensation under a "common but differentiated responsibilities" principles accounting for historical climate damage.

Figure 2.8: Cumulative carbon emission debt at social cost of carbon of USD 70 per tCO2



Source: AfDB calculation.

CHAPTER 3

FINANCING CLIMATE RESILIENCE AND A JUST ENERGY TRANSITION IN NORTH AFRICA

Key Messages

- **Climate financing plays a central role in North Africa's transition towards a low-carbon, climate-resilient development pathway.** The financing needs articulated by North African countries to reach their climate targets are substantial. Four North African countries have estimated financing needs, which range between USD 11-73 billion to achieve net zero emissions by 2050 but remains underestimated.

- **The cumulative financing needs for North Africa to respond adequately to climate change is estimated at USD 363.3 billion, in 2020–30.** If North Africa receives the same annual amount of climate finance as received over 2016-2020 (USD 3.96 billion per year), the resulting financing gap would be USD 29.06 billion a year in 2020–30, greatly limiting the region's ability to build climate resilience.

- **All North African countries are eligible to receive climate finance from developed countries under the multilateral commitments that have been made.** In addition, private finance for climate action is much needed, if countries are to meet their climate mitigation targets, but North Africa faces barriers to mobilization.

- **The North African countries need to tap further into finance levers to accelerate climate action and attract investment in renewable energy technologies, energy efficiency and water efficiency for the clean energy transition.** North African governments have many options. The potential for using fiscal policy and public spending to direct financial flows towards climate action is underexploited, while North African countries have potential for instruments such as carbon pricing in the context of wider environmental tax reform. Coordinated green budgeting, green procurement and public investment can provide important market signals in North Africa. Fiscal policy can be used to support greater resilience to climate change impacts in North Africa.

- **The flow of international climate finance from developed countries to North African countries has been focused on solar capacity.** North African countries have received USD 852 million across 94 country-level projects from the major dedicated multilateral climate funds. The Multilateral Development Banks (MDBs) have been accelerating their spending on climate finance, in line with their climate finance targets. In 2020, USD 2.5 billion in climate finance was committed across North African countries by the MDBs alone. New approaches for mobilizing finance for climate action are emerging. There remains scope for new sources, channels, and instruments to finance climate action in North Africa.

3.1 FINANCE PLAYS A CENTRAL ROLE IN NORTH AFRICA'S TRANSITION TOWARDS A LOW-CARBON, CLIMATE-RESILIENT DEVELOPMENT PATHWAY

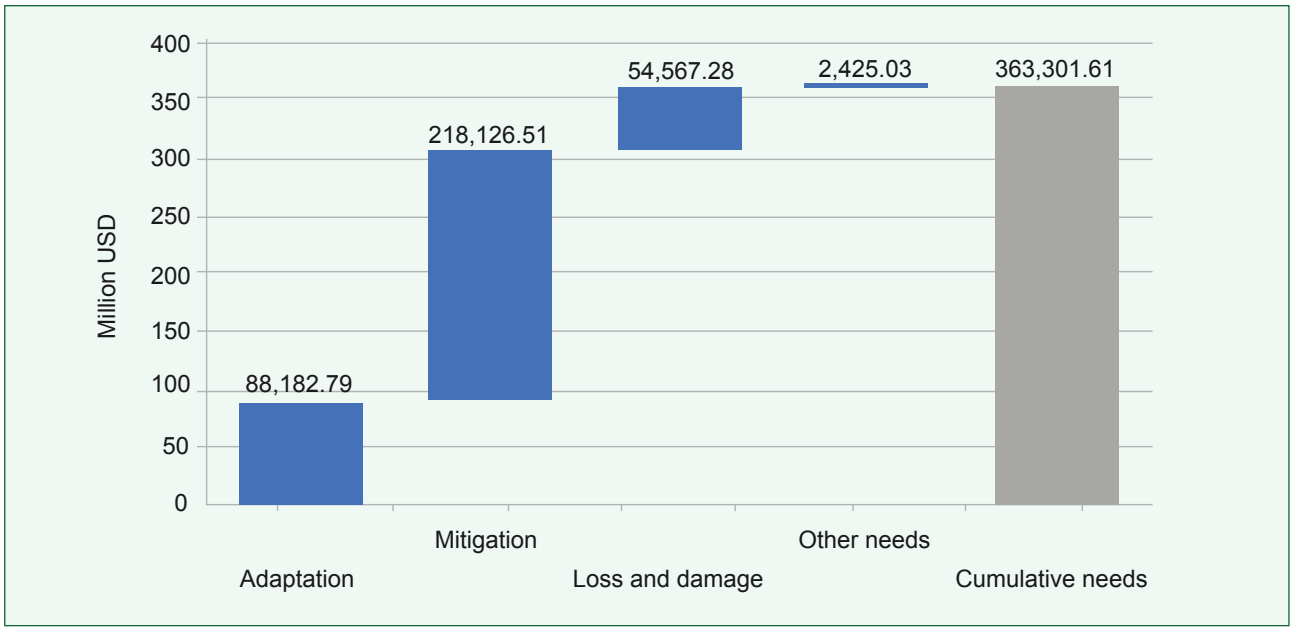
3.1.1 Climate finance needs, inflows, and gap in North Africa

The financing needs articulated by North African countries to reach their climate targets are substantial. Four North African countries have estimated financing needs, which range between USD 11-73 billion to achieve net zero emissions by 2050[12]. These are articulated in their NDCs, although they use different methods and timeframes that hinder comparison or aggregation. A 2021 comprehensive review of developing country needs articulated in national reports to the multilateral system of climate negotiations found that many needs are expressed qualitatively and are not costed, suggesting these are underestimates. Morocco's needs, as expressed in its National Communications to the UNFCCC, include institutional building and policy development which is more challenging to cost (UNFCCC, 2021b). The 2022 AEO identifies Africa-wide financing needs at about USD 2.65 trillion between 2020 and 2030. Finance is a critical lever to meet the scale and necessary pace of the low-emission, climate resilient sectoral and societal transitions to meet the 1.5°C target. Estimates of available finance for climate action fall far short of the estimated needs of transitions (UNFCCC, 2021b).

The cumulative financing needs for North Africa to respond adequately to climate change is estimated at USD 363.3 billion, in 2020–30 (Figure 3.1). Adaptation costs are estimated at USD 88.2 billion, or about 24 percent of North Africa's total needs. However, adaptation needs are most likely to be underestimated due to a lack of data and technical expertise to estimate the true cost of adaptation measures, including the uncertainty of future carbon emissions and how these will influence adaptation needs. In addition, there are other social, economic, and political circumstances that might influence the determination of needs in relation to adaptation, such as rapid social and political changing conditions at the local level. At USD 218.1 billion, mitigation accounts for 60 percent of the estimated needs in 2020-30. Loss and damage costs due to climate change are projected to USD 54.6 billion.

[12] Egypt, Mauritania, Morocco, and Tunisia have all put costed elements in their NDCs. Algeria made no estimate, though its NDC is a condition for international support. Libya did not submit an NDC.

Figure 3.1: North Africa's estimated climate financing needs in 2020-30 (in million USD)

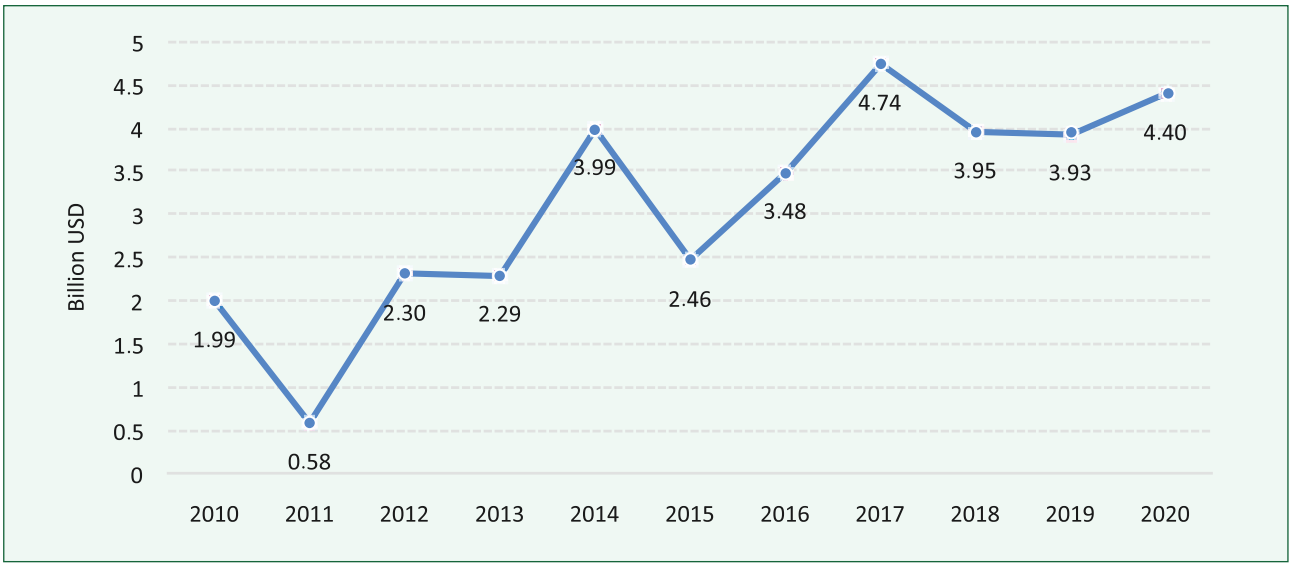


Source: Authors' calculations based on AfDB (2022).
Note: Other needs include technical and technological needs as well as Monitoring, Reporting, and Verification needs.

Morocco and Mauritania have been identified as the most greatly affected African States – as measured by GDP change per capita – in both low and high, medium, and long-term warming scenarios (AfDB, 2019). It is clear, therefore, that insufficient climate ambition and finance for climate action will be costly in these countries, and North Africa more broadly. Delayed action will lead to rising costs of economic and non-economic losses and damages caused by the adverse effects of climate change (IPCC, 2020; IPCC, 2022). While mitigation to climate change remains a foremost solution to stabilize temperatures, residual damages will exist as there are limits to adaptation and adaptive capacity for some human and natural systems that have associated losses (Mace and Verheyen, 2016; IPCC, 2018).

Over 2010-2020, North Africa received USD 34.1 billion of climate finance mobilized by developed countries, averaging USD 3.1 billion per year. Climate finance inflows have increased annually by 7.4 percent on average over the same period, ranging from about USD 2 billion in 2010 to USD 4.4 billion 2020, peaking at USD 4.7 billion in 2017. Over 2010-15, the region received USD 13.6 billion of climate finance, compared to USD 20.5 billion for the period 2016-20.

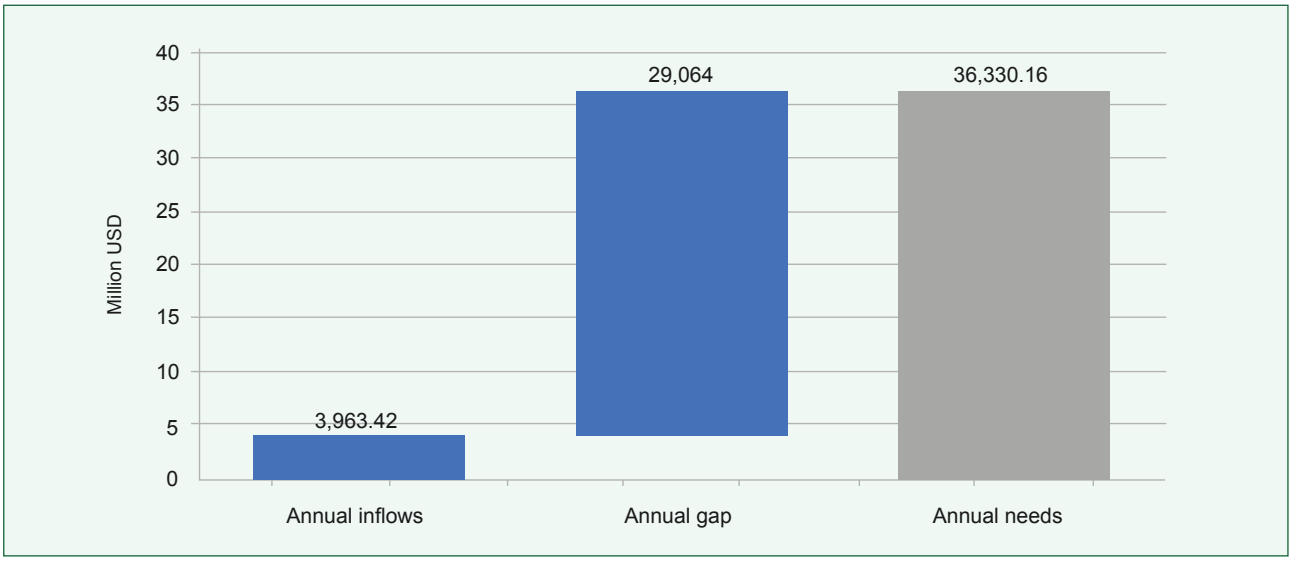
Figure 3.2: Estimated climate finance inflows to North Africa (in billion USD)



Source: AfDB computations.
Note: The total amount of climate finance inflows corresponds to the sum of the values of Mitigation and of Adaptation, minus the cross-cutting value

Assuming that North Africa continues to receive the same annual amount of climate finance as received over 2016-20 (USD 3.96 billion per year), the resulting financing gap would be USD 29.06 billion a year in 2020–30, greatly limiting the region's ability to build climate resilience.

Figure 3.3: Estimated annual climate finance gap of North Africa (in million USD)



Source: AfDB computations.

3.1.2 North African economies remain eligible for climate finance

All North African countries are eligible to receive climate finance from developed countries under the multilateral commitments that have been made. Recognizing common but differentiated responsibilities of countries, the 1992 UNFCCC is clear that developed countries should take the lead in mobilizing finance for developing countries who have contributed least to historical greenhouse gas emissions (UNFCCC, 1992). Others in a position to do so may also assist voluntarily. In the Copenhagen Accord, established in 2009, developed countries committed to a goal of jointly mobilizing USD 100 billion a year by 2020 to address the needs of developing countries (UNFCCC, 2010), though this quantitative figure itself should be recognized as a political goal rather than reflective of developing country financing needs (Weikmans and Roberts, 2019).

Algeria, Mauritania, Morocco, and Tunisia are all clear that their mitigation targets in their NDCs are conditional on international support. At COP26, the Glasgow Climate Pact noted "with deep regret" that developed countries had missed their goal to jointly mobilize USD 100 billion a year by 2020 (UNFCCC, 2021a). It was estimated that climate finance provided and mobilized by developed countries only reached USD 80 billion in 2019. It remains politically important to meet this goal and developed countries have established a roadmap to meeting it by 2023 (OECD, 2021).

In 2017-18, the Middle East and North Africa (MENA) region, accounted for 7 percent of international public finance flows (UNFCCC, 2021c). This includes bilateral flows as well as those flowing through multilateral systems such as the dedicated climate funds and the MDBs. While the challenge remains that climate finance and associated concepts are poorly defined and perceptions of what counts are inconsistent across stakeholder groups (Bodnar et al, 2015), least contentious are the public highly concessional flows from developed to developing countries with climate objectives. Private finance for climate change mitigation and adaptation is recognized under this developed country mobilization goal and pressure has been mounting on the role of private finance for adaptation and mitigation considering limited public budgets.

Box 3.1: United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) 27 in Egypt

In late 2022, Egypt will take over the Presidency of the UNFCCC Conference of the Parties (COP) and host its 27th meeting in Sharm-el-Sheikh. COP27 will build on the deliberations of COP26 held in Glasgow, under the United Kingdom COP Presidency.

Having called for updated and more ambitious NDCs, COP27 will need countries to come with strong climate change mitigation targets in line to the 1.5°C target. Yet, as an African COP, adaptation to the impacts of a changing climate is likely to be a core focus considering the region's low historical responsibility for anthropogenic climate change. COP26 launched a work program on setting a global goal on adaptation and urged developed countries to at least double their collective provision of adaptation finance by 2025 and COP27 is the first milestone to identify what institutions are doing differently in pursuit of this goal.

The Glasgow Climate Pact also saw a Dialogue established to discuss arrangements for funding for averting, minimizing, and addressing loss and damage (UNFCCC, 2021a), a topic that has been highly contentious in past deliberations (Mace and Verheyen, 2016; Pandit Chhetri et al, 2021). Loss and damage can be understood as the economic and non-economic losses and damages of both extreme weather events and slow-onset processes. It illustrates that there are limits to adaptation, be it technical, financial, or based in policy (Morrissy and Oliver-Smith, 2013; Schafer et al

2021). Civil society is calling for COP27 in Egypt to deliver on a loss and damage financing mechanism for developing countries in addition to operationalizing on the Santiago Network for Loss and Damage, whose institutional arrangements will be finalized in 2022.

The Egyptian Presidency will need to progress these agendas, in addition to numerous climate finance agenda items including advancing discussions on a new collective quantified climate finance goal for 2025, progress on the USD 100 billion commitment and how to assess progress towards making finance flows consistent with low-emission, climate resilient development pathways. The latter of which is likely to raise tensions around fossil fuels and their subsidies in light of their role in the Middle East and North Africa (MENA) region as a whole.

3.1.3 Private finance for climate action is much needed, if countries are to meet their climate mitigation targets, but North Africa faces barriers to mobilization

While progress towards the USD 100 billion goal focuses on private finance mobilized through public funding, there is a broader need to unlock private finance for climate action. These private actors include institutional investors, financial intermediaries, corporations, companies, small and medium enterprises and ultimately households. Information is limited on climate investment across the diversity of private actors in mitigation and adaptation. In 2021, global climate-related primary investment was estimated at USD 632 billion of which just under half was attributed to non-state actors (three-quarters of investments were domestic). The MENA region accounted for USD 16 billion of this total annual investment, around 44 percent of which was domestically sourced [Climate Policy Initiative (CPI), 2021].

The North African countries have a common need to attract investment in renewable energy technologies, energy efficiency and water efficiency for the clean energy transition. Notwithstanding differences in the strength of investment climates between North African countries, which result from institutional, legal, regulatory and policy frameworks that affect the ease of doing business, climate projects often involve technologies with limited performance records, stakeholders may lack sufficient data or capabilities to model risks and returns, and project pipelines often remain underdeveloped (Patel, 2011). There are often "cost-gaps" between high and low-emission alternatives. This can generate market distortions based on market maturity of high-emission technologies or from subsidies, such as those for the fossil fuel sector. In the case of adaptation, barriers to investment include a lack of understanding of opportunities, limited data, and information on climate risk as well as low actual and perceived returns on investment [Global Commission on Adaptation (GCA), 2019; the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR), no date (n.d)].

Private climate investment in Egypt and Morocco is often in hard currency and backed by public funds, with a focus on mitigation. Public Private Partnership (PPP) structures are facing barriers because of electricity price fluctuations, payment, and currency risks for mitigation technologies, but too few profitable projects have been identified. In energy efficiency, there remains limited scope of definition of the solutions leading to non-attractiveness of the savings versus investment in important buildings and industry sectors. Private investment for adaptation is also found to suffer from poor definition (UNEP FI, 2022).

Corporations and financial institutions in Morocco and Egypt have engaged in green bond markets in efforts to raise private finance for climate action (Table 3.1). They remain two of the eight countries on the continent with green bond issuances, in addition to the issuance from the AfDB. Africa's green bond market grew to over USD 6.6. billion in 2020 in a global market of over USD 1.6 trillion [Global Centre on Adaptation n.d; Climate Bonds Initiative (CBI), 2022]. Morocco has been active through a series of issuers including

the Moroccan Agency of Sustainable Energy (MASEN) and the Banque Centrale Populaire. MASEN was the first green bond issuer in 2016, seeking USD 117 million with an 18-year tenor for a concentrated solar power facility. In 2017, the International Finance Corporation (IFC) and Proparco – a subsidiary of the Agence Française de Développement (AFD) – supported bond issues with 10-year maturity to refinance investments in green assets; it was notable as the first green bond issues in foreign currency (Euro 135 million). While in Egypt, its Commercial International Bank launched the first private sector green bond issuance in 2021. The USD 100 million issuance supported by the IFC (though not publicly listed) will be used to develop a pipeline of industry energy efficient translations (IFC, 2022). Green bonds issued by private corporations are more likely to deliver additional private finance for investment (UNEP FI, 2022).

Table 3.1: Egypt and Morocco issued African green bonds between 2010-20

Country	Amount Issued in USD equivalent	Issued Currencies
AfDB (supranational)	2.6 billion	USD/Swedish krona/Australian dollar
South Africa	2.6 billion	South African rand
Egypt	750 million	USD
Morocco	356 million	MAD/EUR
Nigeria	136 million	Nigerian naira
Ghana	42 million	EUR
Kenya	41 million	Kenyan shilling
Seychelles	15 million	USD
Namibia	5 million	Namibian dollar

Source: Global Centre on Adaptation, n.d.
Note: All bonds are included (sovereign and private issuances).

Unlocking private finance flows for climate action in North Africa will rely on both domestic and international public finance. Such blended finance will combine that of private finance institutions with international development finance institutions or national public finance institutions to provide refinancing, risk sharing or other support (including export credit agency financing). The use of domestic finance for blending in North Africa, however, will need to be cognisant of (potential) burdens on the public budget.

3.2 TAPPING INTO FINANCE LEVERS TO ACCELERATE CLIMATE ACTION IN NORTH AFRICA

3.2.1 North African Governments have many levers through which they can mobilize finance for climate action

There are many levers that North African governments have at their disposal to influence finance flows, public and private. This section outlines the progress towards financial policy

and regulation, fiscal policy and direct public investment towards low-carbon, climate resilient investment and away from high-carbon investment. These efforts are necessarily underpinned by strong domestic policy, regulatory and capacity efforts which further private sector investment in climate action (Green Growth Best Practice, 2014).

Financial policy and regulation are slowly guiding the climate-consistency of finance flows

The Central Banks of Morocco, Tunisia and Mauritania, and the Financial Regulatory Authority of Egypt are all part of the Central Banks and Supervisors' Network for Greening the Financial System (NGFS). Since 2017, the NGFS has developed and shared best practice and guidance for climate risk management in the finance sector (see Box 3.2). This network also recognizes the role of central banks who oversee the commercial banking system, manage currency, interest rates and money supply, for their role in shifting investment towards climate objectives through their role in setting market rules[13].

Morocco has pursued the greening of capital markets since 2016 when it hosted the COP22. It launched the Marrakech pledge, an initiative of the Autorité Marocaine du Marché des Capitaux (AMMC) that called on regulators and exchanges to foster green capital markets. It was signed by capital market regulators, authorities, and stock exchanges across Africa (including regulators and stock exchanges in Egypt, Morocco, Algeria, and Tunisia)[14]. Morocco's central bank - the Bank Al-Maghrib – alongside the banking association and five other financial regulators further created a 'Roadmap for Aligning the Moroccan Financial Sector with Sustainable Development' during COP22 (Bank Al-Maghrib, 2016). The roadmap covers banking and insurance sectors as well as capital markets, seeking to: extend risk-based governance to socio-environmental risks; develop sustainable financial instruments and products; promote financial inclusion as a driving force for sustainable development; undertake capacity-building; and ensure market transparency and discipline. The Moroccan Capital Market Authority also launched a 'Green Bond Guide', with the support of the IFC (AMMC, n.d). Such actions indicate high level political will and awareness of the risks of climate change that can increase investor confidence and facilitate market development of green financial products. The AMMC has also coordinated with the Casablanca Stock Exchange to create an Environmental, Social and Governance (ESG) index.

The Central Bank of Egypt has been promoting the ESG in recent years. In 2021, it issued Sustainable Finance Guidelines to support the banking sector in Egypt pursue sustainable development. This builds on the Green Bond Guidelines that were put in place in 2018, with IFC support by Egypt's Financial Regulatory Authority. These include guidance for renewable energy, energy efficiency, clean transportation, terrestrial and aquatic biodiversity conservation, climate-change adaptation and sustainable water and wastewater management projects, while fossil-fuel power generation projects are not eligible (CBE, n.d).

In 2022, Tunisia's Conseil du Marché Financier launched its Guide for Issuance of Green, Sustainability and Social Bonds. It sets up a framework for assessment, project funding and external insurance requirements.

Egypt, Morocco, and Tunisia are all countries in which there are supporters of the Task Force for Climate Related Financial Disclosures (TCFD). The TCFD was created in 2015 by the Financial Stability Board, an international regulator promoting global financial stability. It has developed a framework to help public companies and other organizations more effectively disclose climate risks and opportunities through governance, strategy, risk management, metrics, and targets. The TCFD

[13] See: https://www.ngfs.net/en
[14] Available at http://marrakechpledge.com/the-pledge/

underscores the importance of transparency in the pricing of risk — including risk related to climate change — to support informed, efficient capital allocation decisions. As of late 2021, the TCFD has the support of over 1 069 financial institutions with assets of USD 194 trillion[15].

Several institutions in Morocco are TCFD supporters. In addition to two banks and one corporation, the Autorité de Contrôle des Assurances et de la Prévoyance Sociale and Bank Al-Maghrib – Morocco's central bank – are recognized supporters of the TCFD recommendations. The Egyptian Stock Exchange is also a TCFD supporter, alongside the Commercial International Bank and two further corporations. A single corporation is a recognized TCFD supporter in Tunisia. In 2021, Morocco's central bank put in place mandatory ESG and climate disclosure requirements requiring banks to estimate their exposure to physical and transitional climate risks under different climate change scenarios. Similarly, in Egypt, banks are now required by the Financial Regulatory Authority to integrate ESG and climate change into their risk reporting, product portfolios and data systems. Mandatory ESG reporting requirements for listed companies and non-bank financial services will follow. While the ultimate objective is the mandating of climate-related financial disclosures by regulators the endorsement of the TCFD recommendations alone serves to increase pressure to develop standards for due diligence for accounting for climate risk or requesting investors to include sustainability aspects in financial disclosures.

Financial regulatory authorities have several additional tools available for the supervision of the activities of financial sector actors that are relevant for climate change action. This includes liquidity instruments, lending limits and differentiated reserve requirements that can work to either limit carbon-intensive exposure or incentivize low-carbon intensive exposure (D'Orazio and Popoyan, 2019).

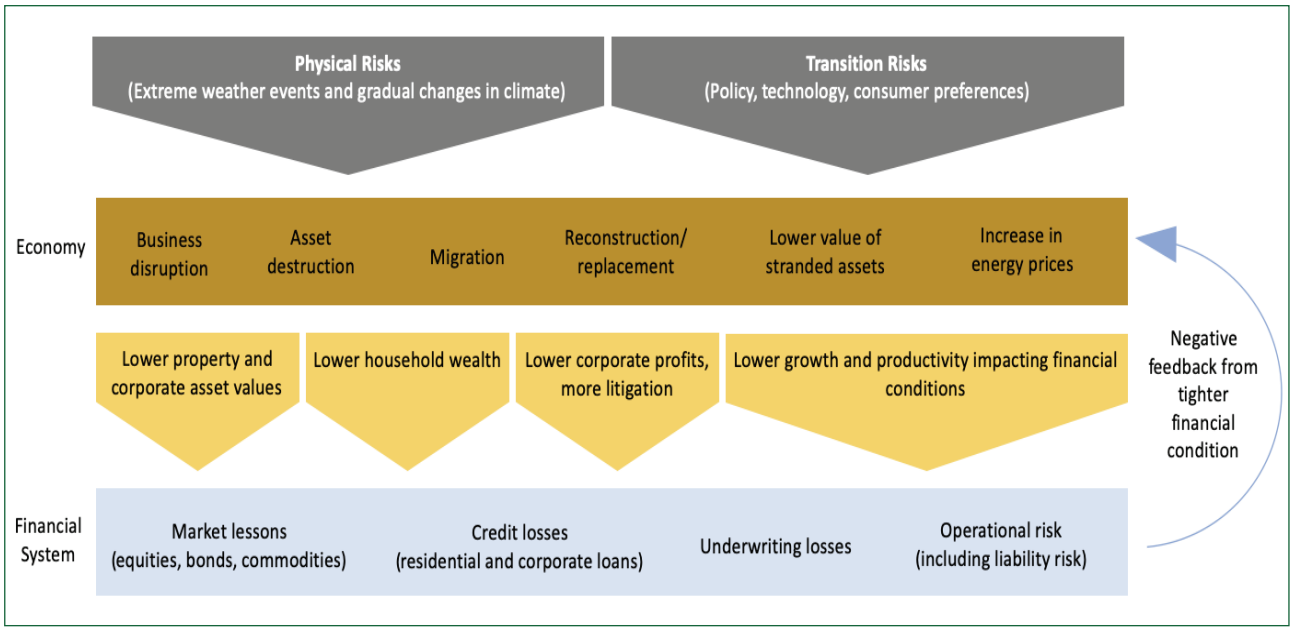
Shifts in North African financial policy and regulation will be underpinned by changes in wider policy and regulation. For example, they can support a shift away from fossil fuel energy towards renewable energies, but the energy transition will also rest on energy sector policies that seek to reduce the emissions intensity of oil and gas production in North Africa (IEA, 2020).

Box 3.2: Financial stability risks are posed by the adverse effects of climate change

Recent years have seen a global acceleration in private sector climate action. This is largely led by a growing understanding among private sector actors that climate change delivers a real risk to investments, assets, and operations (ECB, 2019). The recent IPCC report is clear that climate change is no longer a long-term risk, but that adverse impacts are already being felt (IPCC, 2022). This includes both the physical risk of the adverse effects of climate change which disrupt supply chains, erode collateral and asset values, and the transitional risks of changing government targets and policy in reaction to a changing climate. This can lead to value reassessments and stranded assets. Figure 3.1 depicts how climate risks create risks for the financial system, such as through increased default risk and greater risks in mortgage portfolios. It illustrates how negative feedback loops occur, for instance when banks restrict lending in vulnerable regions consequently weakening household wealth and reducing consumption (IMF, 2019). As climate risks materialise, they will further lead to rising insurance costs as well as impact economic growth, affect tax revenues, and potentially challenge debt repayment.

[15] See: https://www.fsb-tcfd.org

Figure 3.4: Effects of climate risks on other risks



Source: AfDB based on IMF (2019).

3.2.2 The potential to use fiscal policy and public spending to guide finance-flows to climate action is underexploited

All North African countries have renewable energy targets. These National renewable energy targets serve to provide government-led direction offering more confidence and certainty to investors. These national targets will act in conjunction with nationally led standards and taxonomies and will be fueled, for example, by country engagement in collaboratives. To translate national targets into action the risk-return balance for capital flow must be shifted. As the actual cost of renewable energy generation falls below that for fossil fuel energy generation, fiscal policy seeks to not only level the playing field between fossil and non-fossil energy types but also incentivize a rapid scaling up of renewables, a winding down of non-renewables and increases in the efficiency of the energy system.

Egypt and Morocco are part of the Coalition of Finance Ministers for Climate Action. Established in 2018 the Coalition has developed principles seeking to promote climate action through public finance and fiscal policy. The engagement in the Coalition reflects that fiscal policy strongly influences the investment decisions of private actors and therefore, can be used to shape a low-emission, climate resilient transition in North Africa. The Coalitions principles include carbon pricing (as part of wider environmental tax reforms); mainstreaming mitigation and adaptation in budgeting, public investment, and public procurement; and sharing experiences on green bond issuance and other financial instruments to increase financing flows to climate action (Coalition of Finance Ministers for Climate Action, 2019).

North African countries hold potential for instruments such as carbon pricing in the context of wider environmental tax reform. None of the North African countries

have carbon pricing schemes scheduled or implemented, though some have engaged with the Partnership for Market Readiness[16]. Carbon pricing schemes are growing globally, however, with jurisdictions increasing the coverage of emissions and reach within sectors and increasing concurrent carbon revenues. Carbon prices remain lacking in ambition, however and the reach of carbon pricing coverage is highly variable across jurisdictions (World Bank 2021)[17]. Carbon pricing is just one fiscal policy that can be applied, there are many others that can also encourage energy transition. For instance, renewable energy subsidies are estimated at USD 166 billion in 2017 for supply-side support, though Europe accounts for over half of these subsidies (IRENA, 2020). Other options include supporting the energy efficiency of appliances as equipment and lighting can deliver significant emission reductions. For example, tax exemptions for materials needed to manufacture energy-efficient products exist in Egypt, while Morocco has introduced tax exemptions for modifying public buildings such as by increasing energy efficiency or reducing energy demand (IEA, 2020).

The reform of fossil fuel subsidies can also support the energy transition in North Africa. Algeria, Libya, and Egypt – the three North African countries with oil and gas reserves – are also in the top 25 countries ranked for the value of their fossil fuel subsidies, with oil the most subsidized fuel. Relative to GDP, Libya's fossil fuel subsidies – at 17.5 percent of GDP – are much higher than any of the other top 25 countries globally in 2020. Finance flows such as fossil fuel subsidies that act in opposition to low-emission, climate resilient futures have come under increasing scrutiny given the urgency at which the climate crisis must be addressed. COP26 was historic in that it made mention to fossil fuels, specifically the Glasgow Climate Pact called to phase-out inefficient fossil fuel subsidies (UNFCCC, 2021a). Globally fossil fuel subsidies were estimated to be worth USD 440 billion in 2020, though it is noted that definitions and methods vary (IEA, 2022)[18]. In North Africa, a phase out of the use of fossil fuels will need to happen in parallel with increases in alternative energy sources, and in consideration of economic growth and sustainable development objectives (Box 3.3). Indeed, the Paris Agreement makes provisions to ensure that there is a just transition to low-emission, climate resilient economies (UNFCCC, 2015). While no universal definition of a just transition has emerged, it was originally conceptualised as decent work for all, social inclusion, and the eradication of poverty [International Labor Organization (ILO), 2015].

Coordinated green budgeting, green procurement and public investment will provide important market signals in North Africa. Egypt's Ministry of Planning and Economic Development and its Ministry of Environment have created an '*Environmental Sustainability Standards Guide*' towards achieving green recovery. It includes elements of greening of the national budget, such as a target of doubling green project investment (to reach 50 percent of the budget) by 2025 (MPED, 2022). As North African government finances and debt sustainability are strongly exposed to fiscal risks from climate-related weather events, the integration of climate risks into planning and budgeting cycles is a key step in financing climate action and managing climate impacts.

Partnerships between energy producers and governments or investors can also be fostered to de-risk investments. This includes through power purchase agreements (PPAs) for government buildings or for public transport networks and vehicles. Also, through feed-in tariffs, particularly for solar and wind renewable energy, that can also decrease project

[16] The Partnership for Market Readiness (PMR), administered by the World Bank, engages predominantly in middle income countries to support efforts that use market instruments to scale up mitigation efforts. Although initially geared towards promoting market readiness for the anticipated emergence of international carbon markets, this approach has become more flexible, providing grants and technical support for proposals for implementation of market tools that contribute to mitigation efforts.
[17] The African Economic Outlook 2022 provides details on carbon markets in Africa (AfDB, 2022).
[18] The IEA calculates subsidies through the price-gap approach comparing average end-user prices by consumers with reference prices that refer to the full cost of supply. It therefore focusses on consumption subsidies. Such a method provides different estimates to that of the OECD inventory that collates information on tax breaks and budgetary support and therefore includes both production and consumption subsidies.

revenue uncertainties (DNV, 2020). Egypt, Algeria, and Tunisia have made use of enacted feed-in tariffs – that pay households or businesses that generate electricity beyond their own needs – as well as competitive auctions (IEA, 2020). Egypt's Green Economic strategy, launched in 2016 also considers green public procurement. An important area, public procurement contributes 8 to 30 percent of countries' GDP globally – with construction and transport the most significant share – and through their purchasing power, government bodies and the public sector can encourage the production and consumption of sustainable goods and services (UNEP, 2019).

North African countries have engaged in PPP models and in blending finance for climate action. Tunisia has an energy transition fund (Fonds de transition énergétique) to finance energy efficiency and renewable energy. The fund is managed by the "Agence nationale pour la maîtrise de l'énergie", a public institution under the Ministry of Energy, Mines, and Energy Transition, which provides subsidies and loans to finance investment actions aimed at energy efficiency (IEA, 2020).

Egypt pioneered the first sovereign green bond in North Africa as part of its debt strategy. In 2020, Egypt issued a USD 750 million bond directed predominantly at clean transport (AfDB, 2021). The issuance of sovereign green bonds has increased dramatically globally. In 2020, issued sovereign green bonds amounted to over USD 41 billion. They remain, however, a small share of the total green bond market and total sovereign bond market (noting that Egypt, Morocco, and Tunisia all have participated in Eurobond issuances) (FSDR, 2022). While the increased investor demand includes large sovereign wealth funds and pension funds committed to responsible investment and to the integration of Environmental, Social and Governance (ESG) factors, there remains a lack of standardization among green bonds and disclosure of asset and project level activities (CBI, 2022).

Fiscal policy can be used to support greater resilience to climate change impacts in North Africa. This encompasses agricultural subsidies that deserve attention to identify if reform could reduce emissions and the exposure of the sector to the impact of climate change. Many North African countries rely on the import of staple food products from international markets and domestic agricultural policies support grain production and consumption to increase food security. Such crop types and current practices strain water resources and degrade soil. Net agricultural subsidies for production are estimated globally at USD 619 billion per year, largely aimed at guaranteeing minimum income for producer or affordability of food and historically without regard for climate change impacts (OECD, 2019; Bellmann, 2019). Data on agricultural support across North Africa countries is not even. Tunisia's Cereal Board controls a large share of marketing of domestic wheat and barley production and the government sets guaranteed minimum prices as well as subsidies irrigation water and agricultural machinery and irrigation equipment. While in Egypt wheat production, storage and marketing is heavily regulated and wheat is subsidized by input and output subsidies (including fertilizer and wheat procurement prices), consumer subsidies for bread, government investment in infrastructure improvements and research (OECD and FAO, 2018). Agricultural subsidies are hard to identify as climate-aligned or mis-aligned. Work is increasingly being produced to better understand how agricultural subsidies can be reformed to encourage both emission reductions and climate resilience, including through increasing the efficiency of emission-intensive inputs, reforming production payments and reforming market price support and tax concessions (Watson, 2021).

Other fiscal measures include those that increase liquidity following climate-related weather events, reduce debt default (including contingency and reserve funds, ex-ante contingent credit and ex post borrowing), and those that transfer or pool risk. Mauritania engages with multi-country sovereign disaster insurance through the African Risk Capacity (ARC). A specialized agency of the African Union, it offers risk pooling and risk transfer services. Its index-based insurance propositions target infrequent, weather-related events while it also offers collaboration and technical support. Since 2014, over USD 64 million is reported to have been paid out. Mauritania received USD 6.3 million in 2015 and USD 2.4 million in 2018 for food insecure areas because of droughts. While Libya is also a member state of the ARC, it has not engaged in the risk pools to date (ARC, 2022).

Box 3.3: Reform of fossil fuel subsidies towards a low-emission energy transition in North Africa

Oil and gas reserves play an important role in economic growth for Algeria, Libya and have done historically in Egypt including through export. Energy subsidies across North Africa have facilitated access to affordable energy. As such any reform of fossil fuel subsidies in support of climate change mitigation must balance the benefits to commercial, industrial, and household consumers and the need to continue to strengthen revenue mobilization. There remains a case for fossil fuel subsidy reform, however, potentially stabilizing government revenues despite global hydrocarbon price fluctuations, freeing up additional resources for export (e.g., in the case of Algeria), or in the pursuit of cleaner energy for cooking and reductions in the associated negative effects (e.g., in the case of the use of traditional biomass in Morocco and Algeria) (IEA, 2020).

The progress of options for fossil fuel subsidy reform and ease of implementation vary across North African countries.

Egypt reformed its longstanding fossil fuel subsidies in 2014. Fossil fuel subsidies accounted for a fifth of Egypt's budget or an estimated USD 21 million in 2013. The reforms raised the prices of gasoline, diesel, and kerosene, on average by 69 percent (although they remained below global averages). To protect the most vulnerable, food subsidies were expanded, and transport offered for free in some circumstances to low-income households, in addition to which Egypt was able to increase in the public-sector minimum wage (WRI, 2021a, IISD, 2018).

Morocco also reformed its fossil fuel subsidies in 2014. A country long-reliant on fossil-fuel imports to meet energy needs, larger shares of the government budget were being called on for subsidies to meet the needs of a growing and increasingly urbanized population. Subsidies on gasoline and fuel oil were ended under the reforms and diesel subsidies were also reduced. Subsidies benefitting the poor and rural communities were retained – subsidies for butane used for cooking, light and irrigation – and Morocco reinvested in renewable energy projects that further created jobs. Protests resulting from increases in electricity prices experienced in 2015, led to increases in the transparency of spending [IISD, 2017; World Resource Institute (WRI), 2021b).

Algeria, heavily dependent on oil and gas revenues, has been dependent on hydrocarbon price changes during recent years. The country has high levels of subsidies for food, fuel and electricity that has led to budget deficits as income from energy exports faltered between 2016 and 2020. In late 2021, policymakers voted to back subsidy reform and plans are to emerge on social safety nets and other measures that can avoid public backlash during the subsidy revision process.

Libya has heavily relied on oil for its fiscal revenues. The fiscal deficit is high and public sector wages and subsidies account for a large chunk of Libya's budget. As a result, there are ongoing discussions on reductions of consumer support measures for fossil fuels.

In attempt to take advantage of low international oil prices, Tunisia – an energy importer – worked to reform fuel subsidies in 2020 [National Resource Governance Initiative (NRGI), 2019; NRGI, 2020]. As prices rebound, consumers feeling fuel cost rises have protested and the country will need to work to reform its fiscal policy environment both for hydrocarbons and renewable energy, coupled with addressing social consequences of the fossil fuel subsidy reform.

Fossil fuel subsidies are one element, but not the sole aspect of public finance that is not appropriate to address the climate crisis. Globally, much less data and analysis exist on climate-misaligned, off-budget government fossil fuel spending including through state-owned enterprises and credit provided or guaranteed by government (Genscu et al., 2019). The macro-economic risks of these were exposed in the 2021 North African Economic Outlook that highlighted growing contingent liabilities in North African Countries (AfDB, 2021).

The flow of international climate finance from developed countries to North African countries has been focused on solar capacity

The six North African States are eligible for finance committed by developed countries. The commitment that developed countries made to finance adaptation and mitigation in developing countries includes finance provided through a wide variety of financial sources, instruments, and channels. A complex climate finance architecture of public concessional finance flows has emerged. This includes bilateral and multi-lateral finance in the form of both dedicated climate funds and via the Multilateral Development Banks (MDBs) [Climate Funds Update (CFU), 2022a]. The MDBs have been heavily engaged in these climate finance projects in North Africa through their role as implementing entities of the multilateral climate funds and through their co-financing.

North African countries have received USD 852 million across 94 country-level projects from the major dedicated multilateral climate funds[19]. Mitigation focused projects account for over 66 percent of this cumulative funding programmed between 2003 and 2021. The influence of the Green Climate Fund (GCF) (the newest and largest of the multilateral climate funds and with the mandate of COP under the UNFCCC) is scaling up fast in North Africa. However, the Climate Investment Funds (CIFs) of the World Bank and in particularly its Clean Technology Fund (CTF) remains the biggest provider in North Africa.

North African countries are engaged in projects approved regionally or implemented across multiple countries in addition to their country-level projects. It is not possible to attribute an amount to each participating country. These projects represent large approved amounts. The GCF has approved a USD 378 million project on Sustainable Energy Financing Facilities, implemented with the European Bank for Reconstruction and Development (EBRD), and a USD 270 million project on Transforming Financial Systems for Climate, implemented with Agence Française de Développement (AFD), that include Egypt and Morocco (and Tunisia in the case of the former), in addition to other countries in the World Bank MENA grouping. Tunisia and Mauritania also participate in multi-country GCF projects leveraging energy access finance and facilitating solar power access (implemented by the AfDB) and supporting green cities.

The MDBs have been accelerating their spending on climate finance and most have climate finance targets. In 2020, USD 2.5 billion in climate finance was committed across North African countries by the MDBs alone[20]. Out of a total USD 66 billion committed globally in 2020, the majority supported mitigation (76 percent) (MDBs, 2021). This figure includes both the MDB own accounts and external resources and therefore includes the dedicated climate change funds mentioned in the paragraph above (the CIFs). While data is often not as granular as that from the multilateral climate change funds, MDBs and other financial development institutions' funding plays an important role in financing climate action in North Africa, particularly in addressing barriers to private sector engagement. Not all of these are tagged as 'climate finance'.

The largest project of the North African countries is Morocco's USD 238 million concessional loan for the Noor II and III Concentrated Solar Power (CSP) Project with the AfDB and International Bank for Reconstruction and Development (IBRD) as implementing partners (Stadelmann et al., 2014). Approved in 2014 by the Clean Technology Fund (CTF) of the CIFs, the project is part of a CTF strategy to deploy CSP across the region. The CTF-CSP strategy for the region now amounts to CTF project approvals

[19] The major multilateral climate change funds are considered to be those operating under the financial mechanism of the UNFCCC (Green Climate Fund, Adaptation Fund, Global Environmental Facility, Least Developed Countries Fund and the Special Climate Change Fund) in addition to the: Adaptation for Smallholder Agriculture Fund, Climate Investment Funds (Clean Technology Fund and Pilot Program for Climate Resilience), the (now closed), Global Climate Change Alliance, Millennium Development Goal Achievement Fund and the Partnership for Market Readiness.
[20] It is further noted that the MDBs receive contributions from countries that would fall under the developing country category and therefore these figures are not representative of progress towards the USD 100 billion commitment of developed country Parties to the UNFCCC.

of USD 495 million in addition to significant co-financing from the implementing institutions. The AfDB have also implemented a GEF energy efficiency project for Morocco's industrial sector, and a Clean Technology Fund wind power energy plan, in combination with the IBRD.

Egypt and Morocco are the top two recipients of major multilateral climate funds in the World Bank classified MENA region, with total approved amounts of USD 443 million and USD 296 million respectively (CFU, 2022b)[21]. Egypt's approved funding is provided largely as concessional loans (74 percent), while Morocco's approvals are evenly split between concessional loans and grants (50 percent). Climate finance is concentrated in a small number of large renewable energy projects.

The Green Climate Fund 2017 financed the largest country-level project in the region, an approval of USD 155 million for a renewable energy financing framework in Egypt. Implemented by the EBRD, the project seeks to scale up renewable energy in Egypt through renewable energy integration and leveraged investments. It has two components: a technical assistance program to enhance renewable energy integration, policies, and planning; and a facility to blend GCF and EBRD financing to leverage debt financing from international and development financial institutions, and at a later stage from commercial banks and private sector investments. Debt financing from the EBRD and the GCF is expected to be up to USD 500 million, complemented by USD 150 million in loans from the GCF.

Morocco's One Wind Energy Plan project – it's largest country-level project – was approved in 2011 by the CTF. Implemented by the AfDB, the USD 125 million concessional loan raised USD 2.2 billion in co-funding. Morocco also has secured approvals from the GCF for water and environmental conservation for adaptation, implemented by EBRD and the Morocco Agency for Agricultural Development, for USD 36 million and USD 39 million respectively.

Despite more approved funding being directed to mitigation in Egypt and Morocco, their adaptation projects remain the largest in North Africa. Of the 29 projects directed towards adaptation to climate change in North Africa, the three largest ranging from USD 23 – USD 36 million are GCF grants in Morocco and Egypt, focused on water conversation and irrigation.

Algeria has only USD 5.6 million in grant approvals from the dedicated climate funds. The majority is mitigation focused, driven by a 2019 project of the Global Environment Facility for Integrated Management of Waste Energy at the local level and implemented with the UNDP and the Ministry of Environment and Renewable Energy.

Mauritania and Tunisia both have more adaptation finance approvals than for mitigation projects. Mauritania has climate projects with approved funding totaling USD 76 million, cumulatively, 62 percent of which support adaptation objectives. Most of Mauritania's projects are approved through the Least Developed Countries Fund (USD 28 million) focused on agriculture, water, and livelihoods. Tunisia has climate projects with approval totaling USD 32 million cumulatively, of which 52 percent support adaptation. The Adaptation Fund has approved the single largest project in Tunisia, a USD 10 million project focused on building climate resilience – through sustainable environmental management and livelihoods – in Kairouan, implemented by the International Fund for Agricultural Development (IFAD) with the Ministry for Agriculture, Water Resources and Fisheries. Tunisia also has many project approvals for supporting reporting processes to the multilateral climate change negotiations and capacity building efforts. In 2021, the AfDB initiated work on technical preparatory studies for the implementation of a sustainable District Heating and Cooling system at the Bab Saadoun Medical Complex in Tunis,

[21] According to World Bank classification, the MENA countries are: Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, West Bank and Gaza, Yemen.

including a USD 1 million grant from the Pilot Programme for Climate Resilience.

Libya has received only one USD 300,000 grant approval in 2018 from the GCF. The funding is designated to Libya's preparation to access climate finance through GCF country programming and the establishment of the GCF designated national authority (CFU, 2022c). While this is likely to reflect that Libya is considered a fragile and conflict affected state, it also illustrates that significant capacity and resources are required to access these multilateral climate funds, especially for projects with relatively small amounts programmed relative to needs.

3.2.3 New approaches for mobilizing finance for climate action are emerging

There remains scope for new sources, channels, and instruments to finance climate action in North Africa. Any source, channel or instrument employed must be cognizant of the priorities and needs of North African countries. This implies not only a consideration of the socio-economic impacts of the transition to low-carbon, climate resilient futures, but also, considering countries' debt burden, pandemic recovery, and the impact of the Russia-Ukraine crisis.

As noted in Chapter 1, the North Africa region has received USD 9.7 billion under the Special Drawing Rights (SDRs) allocations of the IMF in August 2021. Such SDRs offer liquidity without creating debt and are free of conditionalities. Developed countries that reallocate their SDRs (such as through the G7 announcement) could be used to further leverage financing for climate resilience and a just energy transition, using for example the AfDB as an intermediary (AfDB, 2022). It remains to be seen if North Africa will benefit from the Resilience and Sustainability Trust (RST)[22].

Debt relief to enable more ambitious climate action has resurfaced as a potential option for financing, particularly considering rising debt burdens in developing and emerging economies because of the COVID-19 pandemic. Debt-for-climate swaps are a form of restructuring of existing debt that is tied to climate action. A creditor allows the debt to be reduced – either by conversion to local currency and/or paid at a lower interest rate or some form of debt write-off – if savings are invested in climate change mitigation or adaptation (Steele and Patel, 2020). In Africa, the use of debt-for-climate or for nature swaps (notably in Cameroon, Ghana, Madagascar and Seychelles) have been small and limited. An IMF plan to roll out a debt-for-climate swap program in 2022 may benefit more African states though the implications for North Africa are unclear (AEO, 2022).

For instance, North African countries could potentially use this tool to fund cultural and natural conservation programs as well as increase adaptive capacity to climate change. First, conservation actions would allow the preservation and expansion of cultural and natural capital and augment the potential tourist attractiveness of the region. Second, increasing adaptive capacity implies either funding infrastructure to better cope with rising sea levels or supporting innovation and training programs to reduce economic exposure to climate sensitive sectors and facilitate structural adjustments and reallocation of the labor force. Third, as additional demands will be placed upon the health system as result of increasing climatic extremes, funds could be allocated towards increasing capacity and supply of the health sector.

Germany and Italy have both been engaging in debt-swaps in North Africa. These have been focused on development, especially food security (Egypt and Italy have been engaging in debt-swaps for development since 2001), Germany-Egypt, Spain-Mauritania) and rural water investment (Germany-

[22] Stimulated by the release of USD 650 billion in SDRs, the RST was created with a view to facilitate structural transformation, including energy transition, in countries with weak foreign currency reserves and limited fiscal space for further social spending, that also builds climate resilience (TCD and IMF, 2021). The RST aims to channel USD 45 billion of SDRs through long-term concessional loans, though its role in climate action is still debated (Mariotti, 2022). In late 2021, G20 leaders further committed to support low-income countries with lending USD 100 billion of their SDRs some of which could support the low-emission, climate resilient transition. See https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_21_5643

Tunisia), for example. Efforts are underway to further develop debt swaps for climate and nature outcomes. The North African countries have differing debt profiles, however, influencing the appropriateness of debt-for-climate swaps across the countries. Algeria and Libya, for example, have a large share of domestic debt in total debts, whereas some North African countries have significant external debt. Other models exist to promote climate investment, such as debt-for-equity swaps, though these are relatively untested for climate action.

Policy-based guarantees remain another little explored option for their role in climate action. Partial guarantees and credit enhancements have been applied at a small-scale globally by the World Bank and bilateral providers for borrowers not in debt distress, but rather those seeking to improve borrowing terms such as longer maturities and lower interest rates. They have a role in encouraging private creditor participation in newly issued bonds in return for reform commitments (FSDR, 2022).

CHAPTER 4

CONCLUSION AND POLICY RECOMMENDATIONS

North African economies demonstrated macroeconomic recovery paths in 2021 after the significant economic and social disruptions inflicted by the Covid-19 pandemic in 2020. Yet, both the spillover effects of the Russia-Ukraine crisis and climate change could reverse these gains and result in additional economic and social challenges, with shocks likely to cascade through interlinked agriculture, food, and energy systems. The immediate focus on energy and food security considering North Africa's proximity to Europe and reliance on imports from Russia and Ukraine, provides an opportunity to face climate change head on. The commitments that North African countries have made to the Paris Agreement - the international treaty on climate change adopted in 2015 - and the underpinning energy transitions outlined within these, should be accelerated ambitiously.

The mobilization of finance will underpin the speed and scale of the energy transition, while also bolstering the resilience of households, enterprises, corporations, the financial sector, and ultimately financial stability in North Africa. While there remain barriers to unlocking private investment for climate action, there are diverse levers that governments could employ to make finance flows consistent with low-emission, climate resilient development pathways: this can be accelerated through climate finance and emerging tools. Several recommendations stem from analysis of the macroeconomic performance of the region, considering the financing needs to transition to low-emission, climate resilient development pathways, both in the short-term and in the medium to long-term:

Near-term policy recommendations to protect people, economic growth, and stability:

Protecting lives and livelihoods through social safety net measures for vulnerable households. North Africa needs to consider measures to maintain welfare and counteract inflationary forces which reduce consumer purchasing power and increase poverty and inequalities in the region. Despite fiscal space constraints, public social safety net programs such as cash transfers are an important tool at hand, especially for the poorest populations providing a buffer against the negative impact on household consumption.

Enhancing preparedness plans against future resurgence of health shocks. Keeping the COVID-19 pandemic under control should remain a top policy priority for North African countries. Governments should build preparedness for timely detection and treatment of the coronavirus or other pandemics through additional investment in their domestic pharmaceutical industries and healthcare systems. They should also closely monitor the situation by establishing an organization to take charge of this responsibility such as Tunisia's National Observatory of New and Emerging Diseases. North African governments could also consider universal health insurance to reduce government spending.

Supporting private sector development through increased competitiveness and access to finance. Private sector and SMEs are the main providers of jobs in North Africa, but they have suffered from several external shocks over the past two

years, including the COVID-19 pandemic and the recent increases in oil and commodity prices which followed the Russia-Ukraine conflict. High prices have affected transport cost and inputs, undermining further countries' competitiveness. It becomes urgent to protect SMEs and job creation, notably through fiscal incentives, direct financial support, and increased access to finance. There is also a need to improve the business environment and provide adequately skilled labor to stimulate private sector growth. Investments in digitalization, human capital, science, technology, engineering, mathematics, and problem-solving skills will trigger the adoption of new technologies required for high value manufacturing and economic diversification.

Undertaking priority structural reforms to enhance resilience to external shocks In the current context of high metal and oil prices, North African economies should seize the opportunity to initiate structural reforms which – if designed well – could be implemented without significant social repercussions. Libya could benefit from the expected huge revenue to launch reconstruction and development of modern strategic infrastructure projects. Countries should identify key reforms to enhance resilience to external shocks, widen fiscal space, reinforce the banking sector, and promote export.

Strengthening coordination among fiscal, monetary, and exchange rate policies to closely monitor the direction, speed, and magnitude of capital flows and their effects. Over the past decade some North African economies have relied heavily on private creditors, mainly Eurobond and commercial sources, to finance their budget and current account deficits. As a result, their debt burdens have become highly sensitive to interest rate and exchange rate movements and the risk of balance of payments crises has increased.

Using debt efficiently to finance productive investment and accelerate economic recovery. North African governments should address the rising public debt levels by allocating debt money transparently to enhance public finance management and accelerate domestic resource mobilization. It also means restructuring state-owned enterprises in difficult situations and conducting regular public expenditure reviews.

Medium- and long-term policy recommendations for strong, sustainable, inclusive growth:

Investing in agriculture productivity and food security. Maintaining and supporting food security in the region remains a crucial objective. Adoption and diffusion of existing climate resilient agricultural technologies in the form of new improved varieties of staple crops, better water and soil management strategies, are of paramount importance to support agricultural productivity in the short and medium term. These adoptions allow agricultural systems to be more resilient to climatic shocks and keep productivity preventing crop failure and shortages and related short term price spikes.

Gradually reducing hydrocarbon dependence by investing continuously in renewable energy capacity. The winding down of fossil energy must be accompanied by a rapid increase in renewable capacity and production in North Africa. While the installed capacity of renewable energy has increased significantly in the last 10 years, fossil fuel capacity still dominates in all North African countries. Countries should invest further in renewable energy capacity (solar and wind power) so that the rate of investment new renewable capacity is close to that of fossil fuels to balance the energy portfolio mix in the medium term.

Exploiting the opportunities provided by demand for energy in Europe and the rest of the World to increase export capacity. There are important opportunities for North Africa to become the future energy leader. North Africa can employ its vast solar energy resources to produce renewable (green) hydrogen that can be transported (by pipelines or shipping) to Europe. Focusing on the Nigeria-Niger-Algeria gas pipeline; the West African gas pipeline extension to Morocco and other additional possibilities for exporting gas to the European Union would be strategic for the North African region.

Investing profits from fossil fuels profits into economic activities not correlated with commodities to build resilient economies. Profits from fossil fuels are likely to be a relevant component for some economies of the region in the future. It is of paramount importance to use at least part of this income stream to increase capacity in non-renewable energy and to invest in economic sectors that are not directly related to the fossil fuel industry like investment in new technologies, digitalization, pharmaceutical, education and human capital. Each country in the region should pursue a diversification plan with a clear timeline. The climate resilience of economies further supports macroeconomic performance where it limits GDP losses due to the adverse effects of climate change and policy-led transitions.

Reforming inefficient fossil fuel subsidies. North African countries are among the top countries ranked for the value of their fossil fuel subsidies. Fossil fuel subsidies have come under increasing scrutiny given the urgency at which the climate crisis must be addressed. Egypt, Morocco, and Tunisia have all acted towards a phase out of the subsidies for fossil fuel. In all countries, it has been clear that reform needs to be carefully managed to take care of those who rely most heavily on subsidies for their welfare. Reducing fossil fuel subsidies will stabilize government revenues, especially in times of oil price volatility, but will also liberate resources for priority public investments.

Removing barriers to further support investment in renewables, accelerate the transition and create jobs. There are barriers to financing the transition to renewable energy sources that need to be overcome. These include perceived and real technology risks, high transaction costs, but also those imposed by a macroeconomic situation of high cost of capital and limited access to capital. Using all government levers concurrently to mobilize investment is required. This includes using public finance well to de-risk private investment in climate change, including through PPPs, while also increasing access to and use of international climate finance. It also calls for fiscal policy reform and promotion through subsidies and taxes (including exemptions), public investment and public procurement and developing and depending on markets for sovereign and non-sovereign, green bonds. Such actions extend beyond mitigation roles to adaptation to climate change, particularly in the case of agriculture and water investment and government support.

Mobilizing climate finance in North Africa and facilitating climate action. There is a need to harmonize methods and timeframes to assess financing needs for climate action and allow for comparison across countries. Well defined costs and targets are necessary to mobilize climate finance in North Africa. High quality targets and pathways play a role in investor certainty, while high quality policy measures will be critical for the eligibility of emerging sources of finance, such as the Resilience and Sustainability Trust fund (RST) of the IMF. Financial policy and regulation should guide financial flows towards climate action. More can be done, however, to learn and operationalize options for macro and micro-prudential regulation and monetary policy to accelerate finance towards energy transitions and climate resilience. Political will should be mobilized.

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