North Africa Economic Outlook 2023

Mobilizing Private Sector Financing for Climate and Green Growth

AFRICAN DEVELOPMENT BANK GROUP
GROUPE DE LA BANQUE AFRICAINE DE DÉVELOPPEMENT

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AAAP	Africa Adaptation Acceleration Program
AACE	Association for the Advancement of Cost Engineering
ABM	Adaptation Benefits Mechanism
ACCF	African Climate Change Fund
ACEF	African Circular Economy Facility
ADRiFi	Africa Disaster Risks Financing
AFACC	African Financial Alliance on Climate Change
AfCFTA	African Continental Free Trade Area
AFD	Agence Française de Développement
AfDB	African Development Bank
AFOLU	Agriculture, Forestry, and Land Use
AGHA	Africa Green Hydrogen Alliance
APEB	Association for the Protection of the Environment and Heritage of Bizerte Bay
APICORP	Arab Petroleum Investments Corporation
ARC	African Risk Capacity
AU	African Union
BMCE	Banque Marocaine du Commerce
CBD	Convention on Biological Diversity
CBE	Central Bank of Egypt
CBIT	Capacity Building Initiative for Transparency
CBNRM	Community-based Natural Resource Management
CCS	Carbon Capture and Storage
CIFs	Climate Investment Funds
CO2	Carbon dioxide
COP	Conference of the Parties
COVID-19	Coronavirus Disease 2019
CPI	Consumer Price Index
CSO	Civil Society Organization
CSP	Concentrated Solar Power
CTF	Counter-Terrorist Financing
DES	Debt-for-Environment Swap
DFI	Development Finance Institution
DII	Desertec Industrial Initiative
DMR	Domestic Resource Mobilization
DSA	Debt Sustainability Analysis
EBRD	European Bank for Reconstruction and Development
EDF	Enel Green Power
EEZ	Exclusive Economic Zone
EGP	Egyptian Pound

EIA	Environmental Impact Assessment
EIB	European Investment Bank
EIF	European Investment Fund
EITI	Extractive Industries Transparency Initiative
EREF	Euromed Renewable Energy Fund
ES	Environmental Service
ESG	Environmental, Social, and Governance
ETAP	Entreprise Tunisienne d'Activités Pétrolières / Tunisian Company of Petroleum Activities
EU ETS	European Union Emissions Trading System
EUR	Euro
EU	European Union
EV	Electric Vehicle
FAO	Food and Agriculture Organization
FAOSTAT	Food and Agriculture Organization Statistics
FDI	Foreign Direct Investment
FEI	Facility for Energy Inclusion
FiT	Feed-in-Tariff
FiTI	Fisheries Transparency Initiative
FNME	Fonds National pour la Maîtrise de l'Energie
FRNH	National Hydrocarbons Revenue Fund
FSC	Forest Stewardship Council
FY	Fiscal Year
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEFF	Green Economy Financing Facility
GFCM	General Fisheries Commission for the Mediterranean
GFI	Global Financial Integrity
GGI	Green Growth Index
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
Gt	Gigaton
GTA	Grand Tortue Ahmeyim
GW	Gigawatt
GWh	Gigawatt-Hour
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IEA	International Energy Agency
IETA	International Emissions Trading Association
IFC	International Finance Corporation
IFI	International Financial Institution
ILO	International Labor Organization
IMF	International Monetary Fund
IPPU	Industrial Processes and Product Use

IRENA	International Renewable Energy Agency
IsDB	Islamic Development Bank
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unregulated, and Unreported
Km	kilometers
KNOMAD	Global Knowledge Partnership on Migration and Development
kWh	kilowatt-Hour
LEED	Leadership in Energy and Environmental Design
LFP	Lithium Iron Phosphate
LNG	Liquefied Natural Gas
LRT	Light Rail Transit
LYD	Libyan Dinar
MAD	Moroccan Dirham
MASEN	Moroccan Agency for Sustainable Energy
MDB	Multilateral Development Bank
MENA	Middle East and North Africa
MoU	Memorandum of Understanding
MTRS	Medium-Term Revenue Strategy
MW	Megawatt
NAFO	Northwest Atlantic Fisheries Organization
NBI	Nile Basin Initiative
NC	Natural Capital
NCP	National Climate Plan
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organization
NMC	Nickel Manganese Cobalt
NOC	National Oil Cooperation
NWFE	Nexus of Water, Food, and Energy
OCP	Office Chérifien des Phosphates
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PES	Payment for Ecosystem Services
PPA	Power Purchase Agreement
PPP	Public Private Partnership
PREREE	National Renewable Energy and Energy Efficiency Program
PSMA	Port State Measures Agreement
PV	Photovoltaic
SDG	Sustainable Development Goal
SEEA	System of Environmental Economic Accounting
SEFA	Sustainable Energy Fund for Africa
SME	Small and Medium-sized Enterprise
SNIM	Société Nationale Industrielle et Minière de Mauritanie
SOE	State-Owned Enterprise
TI	Transparency International

TND	Tunisian Dinar
TVET	Technical and Vocational Education and Training
TWh	Terawatt-Hour
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNECE	United Nations Economic Commission for Europe (UNECE)
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFSA	United Nations Fish Stocks Agreement
UNWTO	United Nations World Tourism Organization
USD	United States Dollar
USGS	United States Geological Survey
WB	World Bank
WDI	World Data Indicator
WEF	World Economic Forum
WFP	World Food Programme
WWF	World Wildlife Fund

Executive Summary

In 2022, North African countries struggled with the challenges of rising inflation and growth recovery, which have been exacerbated by external shocks, including the long-lasting effects of the COVID-19 pandemic and the spillover effects of Russia's invasion of Ukraine[1]. The region registered moderate economic growth of 4.1 percent in 2022 against 5.4 percent in 2021.

However, this growth was uneven across countries. The disruptions of global supply chains and pressure on commodity prices in the international markets instigated unfavorable effects on food and energy systems, especially in countries dependent on imports of these commodities. Consequently, the region recorded rising inflation rates, reaching 8.2 percent in 2022 up from 4.6 percent in 2021, leading to restrictive monetary policies in most North African countries. The regional fiscal deficit reached 3.2 percent of GDP in 2022 but countries' fiscal positions varied, depending on: (i) whether the economy is an oil-exporting or an oil-importing country, (ii) the importance of subsidies on food and energy products in fiscal expenditures, and (iii) the debt service burden. North Africa's current account deficit shrank in the region from 3.0 percent of GDP in 2021 to 0.8 percent in 2022 due to high trade surplus in oil exporting countries. Public debt, including that of State-owned enterprises, and financing needs in the region remain high. Most North African countries increased borrowing, pushing up total government gross debt, which reached on average 61.3 percent of North Africa's GDP in 2022. The rising food and energy prices in North African countries have had significant social effects and threatened food security in the region. Poverty incidence and unemployment, in particular youth unemployment, recently increased, highlighting the need to reinforce economic resilience and diversification in the region. Regional growth is expected to increase slightly to 4.6 percent in 2023 and stabilize at 4.4 percent in 2024 with significant disparities across countries.

Inflation is expected to increase further to a double-digit rate of 14.2 percent in 2023 and to decrease to 6.9 percent in 2024. The regional fiscal deficit is expected to remain around 3.5 percent of GDP in 2023 and 3.2 percent of GDP in 2024. However, external shocks, such as fluctuations in commodity prices, and climate change represent a risk to fiscal consolidation. Regional current account deficit is expected to narrow to 0.5 percent of GDP and 0.2 percent of GDP in 2023 and 2024 respectively. The global economic environment, including trade patterns, tourism, and foreign direct investment flows, is expected to influence the region's external position.

Immediate short-term priorities include coordination of monetary and fiscal policies to address raising inflation and protect small businesses and the populations through targeted public expenditures. With high global inflation, North African countries will need to reconcile the imperative of fighting inflation and the objective of maintaining high GDP growth rates. Similarly, maintaining and supporting food security in the region remains a crucial objective through investment in improved varieties of staple crops, better water, and soil management strategies. The region needs to reinforce resilience, notably along the "energy transition - water management - food security" nexus. Finally, to address the challenges

[1]Agreed wording at the African Development Bank Annual Meetings 2022 in Ghana. Algeria, China, Egypt, Eswatini, Namibia Nigeria and South Africa entered a reservation and proposed "Russia-Ukraine Conflict".

of fiscal consolidation, countries need to sustain efforts to implement reforms, including improving tax administration through more digitalization, expanding the tax base, reducing wasteful public spending, and strengthening governance systems to improve transparency and accountability. In the medium-term, governments should address the underlying factors that influence external positions by promoting economic diversification, improving the business environment to attract foreign direct investment (FDI), and enhancing private sector development and export competitiveness. Enhancing regional integration, through the African Continental Free Trade Area (AfCFTA), can provide opportunities for boosting intra-African trade and investment and enhancing external positions in North African countries. Regarding the debt burden, North African governments should address the rising public debt levels over the medium term by allocating debt money transparently, restructuring State-owned enterprises in difficult situations and conducting regular public expenditure reviews.

The imperative for green growth is becoming increasingly urgent in North Africa as the region faces significant climate change effects, depletion of natural resources and greenhouse gas emissions, leading to unsustainable economic development. Although North African countries remain committed to green growth, the low amounts of dedicated finance represent a significant impediment to the region's transition to a green economy. The annual investment required to implement the region's climate action plan in accordance with the National Determined Contributions (NDCs) is estimated to be USD 25.7 billion up to 2030. Nonetheless, the total climate action finance flows in North Africa amount to USD 5.9 billion, which is only 23 percent of the estimated annual requirement. At the regional level, bilateral donors have been the main sources of climate funds, accounting for about 80 percent of the total flows. Contributions from North African public sector account for 18 percent, while the remaining 2 percent come from the private sector. Other financial needs include investment in sustainable agriculture (estimated at USD 33 billion per year) while investments in waste management and urban development are estimated to require USD 5-7 billion per year and USD 30-40 billion respectively per year. Despite several challenges, North African countries have opportunities to unlock private investments and spur the transition to green growth, particularly in the areas of renewable energy, sustainable agriculture, and sustainable tourism. Thanks to its abundant sunshine, offshore wind capacity, and hectaress of uninhabited land, the North Africa region has the potential to become a world's leading green hydrogen producer. However, market-based partnerships are required to enable mass-scale domestic and global off-take, as well as demand for green hydrogen and increased cooperation to design, finance, build and operate green hydrogen production, storage, and distribution infrastructure. Private sector financing for climate action and green growth in North Africa is facing several challenges, such as lack of clear and consistent policy frameworks, insufficient regulatory frameworks, and limited access to finance and investment opportunities.

Leveraging progress towards green growth requires that North African governments, foreign and domestic private investors, multilateral development banks (MDBs) and development finance institutions (DFIs) work together. In this context, private sector financing can play a key role in providing the necessary capital to invest in clean energy infrastructure, energy efficiency improvements, sustainable agriculture, and land restoration projects in North Africa. Private sector financing can also bring expertise, technology, and management skills for effective and efficient implementation of such development projects. The use of innovative financing instruments and mechanisms will be necessary to leverage private sector financing. This includes social bonds, green bonds, sustainability-linked bonds, carbon markets, debt-for-climate swaps, and blended finance. Some of the policy recommendations include: (i) investing in

financial infrastructure such as payment systems, credit reporting agencies, and stock exchanges; (ii) promoting foreign investment through tax breaks and streamlined regulatory processes; (iii) fostering entrepreneurship and innovation; (iv) providing capacity building and technical assistance to support private sector investment in climate action and green growth; and (v) promoting public-private partnerships (PPP).

North Africa has significant natural wealth, including diverse ecosystems, mineral resources, and renewable energy potential, which provides a range of ecosystem services essential for human well-being and sustainable development. North Africa has the largest natural gas reserves in Africa, representing half of Africa's total reserves. Mining and quarrying represented a value added of USD 95.3 billion in 2021. The region possesses significant mineral resources and renewables, such as wind and solar, which can be harnessed to provide clean energy and move towards green growth. However, this natural capital is at risk due to climate change, environmental degradation, the need to address mismanagement of natural resources, insufficient institutional capacity, and limited public awareness. In contrast, the potential to harness natural capital in North Africa to finance its development goals is huge. Investing in the sustainable management of natural capital can provide a complementary financing option for climate and green growth initiatives in North African countries, thereby contributing to poverty and inequality reduction, job creation, and sustainable economic growth. Integrating the value of natural capital into economic decision-making, such as through natural capital accounting and valuation, can help promote sustainable management practices. Potential areas include promoting sustainable agriculture, developing renewable energy, strengthening natural resource governance, investing in green infrastructure, and promoting sustainable tourism practices.

Harnessing natural capital as a complementary financing option for climate and green growth requires political will, commitment, and coordination from governments and other stakeholders, as well as innovative financing mechanisms and policies to support sustainable natural resource management. The challenges of corruption and illicit trade and financial flows, as well as unsustainable resource management, are interrelated and require a comprehensive approach that addresses governance, institutional capacity, and sustainable resource management practices. The African Development Bank (AfDB) and other international actors have a crucial role to leverage the role of private sector and natural capital in financing climate actions and green growth. They can contribute by: (i) providing technical assistance; (ii) financing initiatives and projects; (iii) raising awareness of private sector and natural capital as enablers for climate action and green growth; and (iv) improving collaboration between North African countries and regional organizations to promote regional cooperation and coordination.

1

NORTH AFRICA'S ECONOMIC PERFORMANCE AND OUTLOOK

KEY MESSAGES

- North African countries have been experiencing moderate economic growth, which declined from 5.4 percent in 2021 to 4.1 percent in 2022. Macroeconomic prospects remain positive and above Africa's average. The region is projected to grow by 4.6 percent in 2023 and 4.4 percent in 2024 with disparities across countries. To sustain inclusive growth, the region needs to implement structural reforms that promote private sector development, enhance productivity and employability, and create job opportunities.

- North African countries have recorded rising inflation rates, which have been attributed to several factors, particularly global inflationary pressures on food and energy products, following Russia's invasion of Ukraine. Despite prudent monetary policies in most countries, the regional inflation rate reached 8.2 percent in 2022 and is expected to increase further to 14.2 percent in 2023 with double-digit inflation rates in Egypt and Mauritania. If sound macroeconomic policies are implemented to address inflationary pressures, the inflation rate would decrease to 6.9 percent in 2024.

- Despite some progress, the region is facing significant challenges in mobilizing revenue, which is essential for sustainable economic growth and development. Governments need to improve their tax systems, increase tax compliance, and reduce tax evasion to enhance revenue mobilization. Given increased oil revenues, Algeria and Libya's fiscal balances improved in 2022. Other North African countries but Mauritania recorded fiscal deficits above 5 percent of GDP, triggered by high public expenditures, notably on subsidies and social measures to protect the vulnerable population in the context of high inflation. The regional fiscal deficit (3.5 percent of GDP in 2022) is expected to remain around this level in 2023.

- External accounts recorded a surplus in Algeria and Libya, in line with increased value in oil exports, and deteriorated in other North African countries but Egypt, reflecting higher imports bills of energy and food relative to export receipts. At the regional level, the current account deficit shrunk from 3.0 percent of GDP in 2021 to 0.8 percent in 2022. Current account balance projections depend on whether the country is a net oil exporter or not, and surpluses are expected to mostly compensate the deficits, with a regional current account deficit of 0.5 percent of GDP and 0.2 percent of GDP in 2023 and 2024 respectively.

- Public debts, including indebtedness of State-owned enterprises, are on the high side in North Africa and financing needs remain elevated in the region. Apart from debt disbursements and the large amounts of remittances received, other financial inflows to North Africa, such as foreign direct investment, have been declining in recent years, exacerbated by the COVID-19 pandemic.

- After the COVID-19 pandemic, the effects of rising food prices and commodity shortages are affecting North African countries. Most African countries are large wheat importers (Egypt is the world's largest) and among the leaders in wheat consumption per capita. The successive crises have led to growing concerns about their effects on unemployment, poverty, inequality, and food security. There is a need to diversify the region's economies away from oil, gas, and mineral exports and towards other sectors such as manufacturing and agribusiness. This will reduce the region's vulnerability to external shocks and enhance its economic resilience.

- Immediate short-term priorities include coordinated monetary and fiscal policies to address raising inflation and protect small businesses and the populations through targeted public expenditures. Similarly, maintaining and supporting food security in the region remains a crucial objective through investment in improved varieties of staple crops, as well as better water and soil management strategies. The region needs to reinforce resilience, notably along the "energy transition - water management - food security" nexus. In addition to the concerns of macroeconomic stabilization and the fight against inflation, it is necessary to take into consideration the broader objectives of economic recovery, by supporting the private sector and implementing the reforms necessary for recovery of investment.

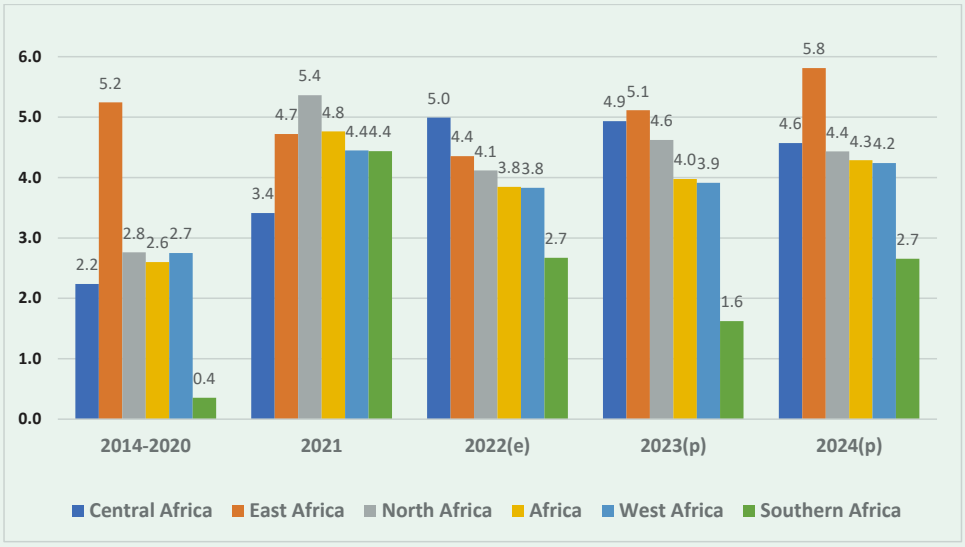
1.1 Growth Performance and Outlook

1.1.1 North Africa's economic growth is expected to stabilize above Africa's average in the short-term

North Africa's economic performance was good in 2022, with a real GDP growth rate of 4.1 percent. However, the region's growth rate has declined by 1.3 percentage points from 5.4 percent in 2021 (Figure 1.1). Yet this growth is uneven, as some of the countries in the region struggle to overcome the toll that external shocks exacted on their economy. In 2022, Libya's economy sharply fell by 12.1 percent due to raising conflicts which affected oil production. Morocco grew by only 1.1 percent because agricultural value added dropped by 15 percent compared to 2021 due to the worst drought the country registered in the last 40 years. GDP growth in Tunisia was estimated at 2.4 percent because of the unfavorable global business environment marked by the Russia's invasion of Ukraine. Algeria recorded a 3 percent growth rate while Egypt and Mauritania were the best performers in the region with growth rates of 6.6 percent and 5.3 percent respectively. In Egypt, the tourism, non-oil manufacturing, and gas extractives sectors, as well as the Suez Canal benefitted from the resumption of international travel and trade (Figure 1.2).

Regional growth is expected to increase slightly to 4.6 percent in 2023 and stabilize at 4.4 percent in 2024. This would put North Africa among the best performing regions in Africa and above projected continental average of 4.0 percent in 2023 and 4.3 percent in 2024. The outlook for ongoing economic recovery is dampened by the unpredictability resulting from the lingering effects of the COVID-19 pandemic and the repercussions of Russia's invasion of Ukraine. The most visible impact on North Africa is the rising oil and food prices, putting more inflationary pressure on the economies. Although the real GDP growth rate for North Africa is projected to stay relatively high, there are expected variations in the economic performance of individual countries in the region. As compared to 2022, real GDP growth is projected to decline by 2.2 percentage points in Egypt, by 1 percentage

Figure 1.1 : Real GDP growth rates in North Africa and other African regions, 2014-2024 (%)

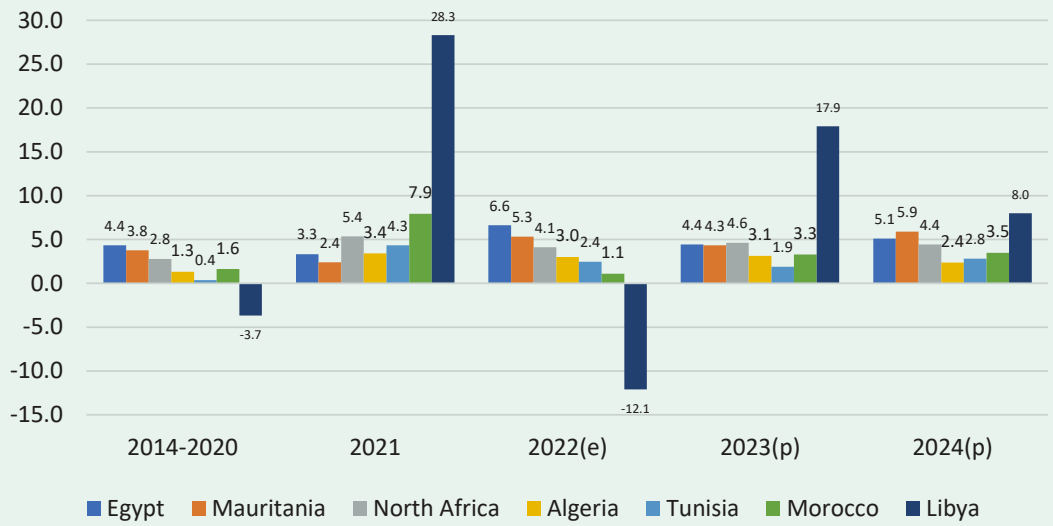


Source: African Development Bank statistics.
Note: Data are estimates for 2022 and projections for 2023–24.

point in Mauritania, and 0.5 percentage point in Tunisia. Libya's economy is expected to record considerable recovery in 2023, with real GDP growth of 17.9 percent. In 2023, economic growth is expected to exhibit a modest rise in Algeria, reaching 3.1 percent in 2023 and a significant rise in Morocco to 3.3 percent, recovering from the 2022 drought.

far Algeria's largest industrial sector. Agriculture, although relatively small in terms of share in GDP, remains an important sector for rural livelihoods in the region, particularly in countries such as Mauritania, accounting for 23.2 percent of GDP. Except for Libya, agriculture represents above 10 percent of GDP in all North African countries. Agricultural production is expected to constitute

Figure 1.2 : GDP growth by country, 2014-2024 (%)



Source: African Development Bank statistics.
Note: Data are estimates for 2022 and projections for 2023–24.

1.1.2 Sector and demand-side breakdown of growth in North Africa

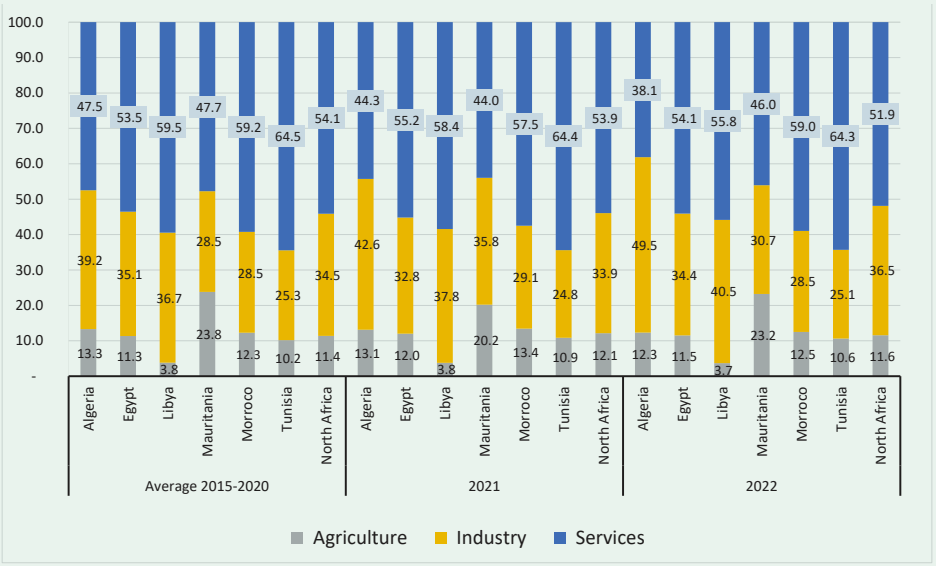
The importance of the service sector on the supply side. Regarding sector breakdown of GDP in North Africa, there has not been significant structural shift apart from Algeria. In 2022, the services sector, particularly trade, tourism, and financial services, remains the largest contributor to the region's GDP (51.9 percent), followed by industry (36.5 percent) and agriculture (11.6 percent). In Algeria, there has been a structural transformation with a growing share of industry in 2022 which has become the primary contributor to its GDP, mainly to the detriment of the services sector (Figure 1.3). The hydrocarbon sector is by

one of the major challenges in the years to come because of the rising effects of climate change and the severe drought that the countries are experiencing in North Africa. It is necessary to attach more importance to the agricultural sector as it affects North Africa's macroeconomic balances and the availability of food and livelihood for the populations. Agriculture is also a major source of employment in North Africa. Mauritania was the North African country in which agriculture had the highest contribution to employment as of 2020. The sector accounted for 50.6 percent of the total employment in the country. Morocco came second, with agriculture corresponding to 34.1 percent of the total employment. In Algeria, the agricultural sector had the least participation

in employment, at nearly 10 percent. However, at the continental level, North Africa was the African region where agriculture had the smallest contribution to total employment[2].

Public spending in the region, particularly on social programs and infrastructure, has played a role in fostering economic growth in all countries but Libya.

Figure 1.3 : Sector shares of nominal GDP in North Africa by country (%)



Source: African Development Bank statistics.
Note: Data are estimates for 2022 and projections for 2023–24.

On the demand side, private consumption and investment drove GDP growth in 2022. As indicated in Table 1.2, household consumption has been a key contributor to 2022 economic growth in North Africa, especially in Mauritania, Egypt, Tunisia, and Algeria in descending order Demand-side contribution to GDP growth in North Africa also reveals that total investment was one of the main drivers of economic growth (1.5 percentage point), whereas government spending and net exports had a relatively small contribution with significant differences by country. For instance, investment was a significant driver of growth in Egypt and Mauritania, but contributed negatively to Libya's economic growth. Factors such as low competitiveness, and limited integration into global value chains have impeded the role of investment and net exports in the country. Net exports contributed negatively to GDP growth in all North African countries except Algeria and Egypt.

1.1.3 Risks and upside factors of the growth outlook

The downside risks to the growth outlook in North Africa include several factors, such as the potential for global economic slowdown and the rising global inflation, exacerbated by recurrent climatic disasters (floods and drought) which affect food security in the region. North African countries may be affected by the global tightening of financial conditions, which is being driven by higher-than-expected inflation in major European economies and the United States. Additionally, the negative spillovers from a prolonged war between Russia and Ukraine would have adverse effects on the region's economy. The rising food and energy prices are expected to keep inflation high in North Africa, with adverse impacts on the purchasing power of the consumers and increasing the cost of doing business, which can slow down economic growth.

[2] https://www.statista.com/statistics/1230033/employment-in-agriculture-by-region-in-africa/

Political instability and conflicts in the Sahel region and Libya could impact economic growth, as they lead to reduced investments and trade through growth, especially if it leads to increased intra-subregional and intra-regional trade.

Table 1.1 : Demand-side contributions to 2022 GDP growth in North Africa

Country	Government Consumption	Household Consumption	Total Investment	Nets Exports	GDP at Market Prices
Algeria	0.4	1.1	0.5	1.1	3.0
Egypt	0.5	2.4	2.2	1.5	6.6
Libya	-1.4	0.8	-0.9	-10.7	-12.1
Mauritania	0.6	4.3	5.6	-5.1	5.3
Morocco	0.3	0.7	0.3	-0.2	1.1
Tunisia	0.6	1.4	0.7	-0.2	2.4
North Africa	0.3	1.8	1.5	0.5	4.1

Source: African Development Bank statistics.

increased uncertainty. All these factors could lead to increased migration pressure both within countries of the region (rural to urban migration) and across borders to neighboring countries. Recognizing that inclusiveness in economic decision-making can contribute to greater social cohesion and sustainable economic development, the need to strengthen domestic accountability mechanisms remains crucial for long-term economic resilience in the region. Another major risk for the region is delays in the implementation of economic reforms, which affect negotiations with the International Financial Institutions (IFIs), and the availability of international financing.

On the upside, North Africa has significant potential for growth, given its natural resources, young and growing population, and strategic location between Europe and sub-Saharan Africa. The region has made progress in economic diversification and attracting foreign investments in recent years, which could lead to increased trade and job creation. Additionally, the adoption of digital technologies and innovation could boost economic growth in the region. The ongoing African Continental Free Trade Area (AfCFTA) agreement could also provide opportunities for increased trade and economic

1.2 Other Macroeconomic Developments and Outlook

1.2.1 Inflation and monetary policy

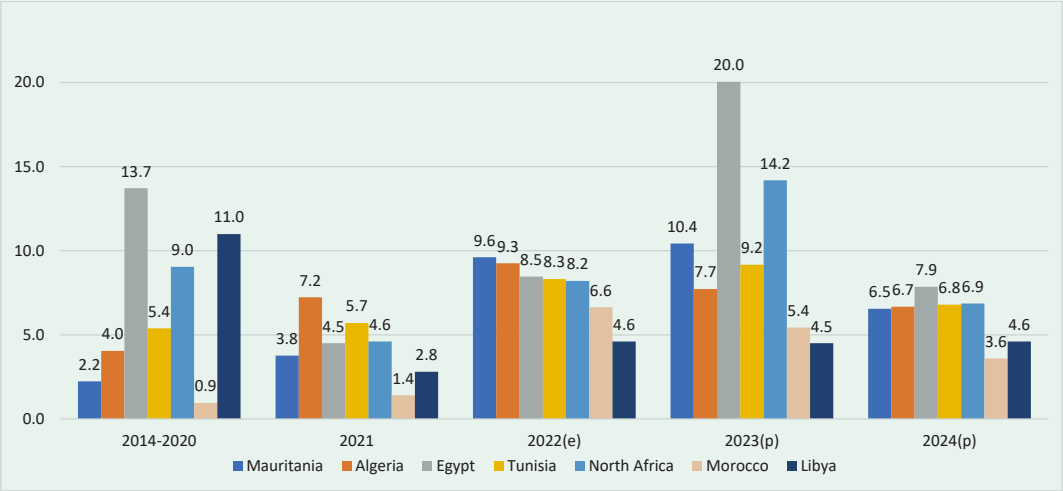
Limiting inflation has been the main objective of the monetary policy in many North African countries and remains a significant challenge. In 2022, the factors driving inflation vary, but generally include rising food and energy prices, currency depreciation, and supply-side constraints. Inflation in all North African countries increased significantly, leading to a regional average of 8.2 percent in 2022, against 4.6 percent in 2021, and projected to increase to 14.2 percent in 2023. The inflationary impact of Russia's invasion of Ukraine is not surprising, as wheat constitutes a significant share of the region's imports. To mitigate the impact of inflationary pressures, all North African countries, except Algeria and Libya, increased interest rates in 2022 and abandoned expansionary monetary policies.

However, the raising of interest rates to fight inflation has been subject of controversy about its appropriateness. For some experts, this monetary policy has not been relevant insofar as most inflation

is imported. On the other hand, more restrictive monetary policy choices weigh on investment and consequently on growth.

In oil exporting Algeria and Libya, interest rates were kept unchanged thanks to the restoration of oil production and related revenues. In Egypt, Egypt, inflation stood at 8.5 percent in 2022, and is expected to increase to 20 percent in 2023. Egypt is experiencing a challenging period with regard to inflation, largely due to the devaluation of the Egyptian pound, which caused import prices to rise, as well as supply-side constraints in key sectors such as food and energy (Box 1.1). The Central

Figure 1.4 : Inflation in North Africa by country, 2014–24 (%)



Source: African Development Bank statistics.
Note: Data are estimates for 2022 and projections for 2023–24.

the Central Bank rate moved from 9.25 percent in March 2022 to 18.75 percent in March 2023. Mauritania's Central Bank decided to increase its rate by 100 basis points bringing it to 8 percent in December 2022. In Morocco, the key interest rate increased from 1.5 percent in early September 2022 to 3 percent in March 2023. The Tunisian rate increased from 6.75 percent in April 2022 to 8 percent in January 2023.

Projected to decline to 7.7 percent in 2023, Algeria experienced a relatively high inflation rate at 9.3 percent in 2022 driven by imported inflation as well as the monetary authorities which pursued a policy that supported the recovery of economic activity and the monetary financing of the budget deficit. In

Bank of Egypt implemented gradual depreciations of the exchange rate, moving to a durably flexible exchange rate regime on 27 October 2022, and an increase in key policy rates in 2022 to address the expanding trade deficit, capital outflows, and the consequent decrease in foreign reserves.

In Libya, inflation is expected to remain stable and low, around 4.5 percent from 2022 to 2024, despite the slight currency depreciation in 2022, political instability, supply-side constraints, and the limited capacity of the authorities to address inflation.

As of January 2023, no agreement had been reached on the unification process of the Central

Box 1.1 : Rising inflation in Egypt: drivers and responses

In Egypt, inflation jumped above the Central Bank's target of 7 percent, estimated at 8.5 percent in FY2021-22 against 4.5 percent in FY2020-21, and is expected to reach a double-digit rate of 20 percent in FY2022-23. Inflation is running at its highest level in five-and-a-half-years. Annual headline inflation increased at double digit rates, to record 25.8 percent and 31.9 percent in January and February 2023 respectively. The observed high inflationary pressures are the results of the combined effect of several factors, which include: (i) rising international food and energy prices; (ii) supply chain disruptions domestically; (ii) depreciation of the Egyptian pound; (iii) demand side pressures driven by the economic recovery; and (iv) reduced energy subsidies. As part of Government efforts to reduce subsidies, fuel product prices increased cumulatively by an average 17.9 percent in four successive adjustments undertaken in October 2021 and in February, April, and July 2022. Over the July 2021-April 2022 period, electricity tariffs rose by 13.3 percent compared to the same period a year earlier. Moreover, in February 2022, the Central Bank of Egypt (CBE) issued instructions to banks to move to letters of credit as the only means of import facilitation, which contributed to a significant compression of imports. Consequently, a backlog of imports worth USD 9.5 billion created disruption in supply chains contributing to rising prices. The move to a more flexible exchange rate regime has also contributed to the inflation increase. The CBE allowed the exchange rate to depreciate by 16 percent in May 2022 followed by gradual fluctuations until moving to a durably flexible exchange rate regime on 27 October 2022. The Egyptian pound lost 50 percent of its value against the USD in the year to 31 December 2022.

To curb inflationary pressures, the CBE introduced five interest rate increases over the March 2022-March 2023 period, bringing it from 9.25 percent to 18.75 percent. The Egyptian authorities are committed to calibrate the monetary policy to reduce inflation back within the target band of 7 percent (±2). On the social side, to mitigate the impact of high inflation on poor and vulnerable households, the Government has planned to increase its spending by 28 percent on social safety programs in the FY2023-24 budget to an estimated EGP 455 billion (USD 15 billion). Breaking with the previous policy on subsidies removal, spending on food and energy subsidies is expected to increase respectively by 20 percent to EGP 108 billion (USD 3.6 billion) and 24 percent to EGP 35.9 billion (USD 1.2 billion). Rising inflation has a significant impact on poverty which remains elevated in Egypt, estimated at 29.7 percent as per the most recent figures, with significant regional disparities.

Bank of Libya with its Eastern branch, which affects the country's monetary policy and banking system. Interest rate remained unchanged at 3 percent in 2022. Mauritania's inflation rates are projected to rise from 9.6 percent in 2022 to 10.4 percent in 2023. The country faces supply-side constraints in key sectors such as food and energy, while monetary expansion policy in 2021 resulted in accelerated credit growth in 2022. This has exacerbated the inflationary pressure, along with the food and gas price rise. Aiming at curbing the escalating inflation, Mauritania tightened its monetary policy in 2022. Morocco experienced the lowest inflation rates in the region in recent years, just 1.4 percent in 2021. However, in 2022, inflation increased to 6.6 percent and is expected to be 5.4 percent in 2023. The Central Bank adopted a cautious strategy towards monetary policy rates while simultaneously maintaining an accommodative stance. Tunisia has also struggled with inflation, with rates reaching 8.3 percent in 2022 and expected to increase to 9.2 percent in 2023. In addition to high inflation, rising interest rates and low economic growth have deteriorated the quality of the portfolios of the banking sector, highly exposed to Tunisian sovereign risk (rated CCC+ by Fitch and Caa2 by Moody's).

The outlook for monetary policy in North African countries will be influenced by the need to balance growth and inflation concerns. Expansionary monetary policies can boost economic growth, create jobs, and stimulate investment, but can also lead to higher inflation. Contractionary policies can

Box 1.2 : Moroccan government measures to mitigate the impacts of inflationary pressures on the population

Over the last decade, Morocco has not been subject to inflationary pressure. Annual inflation averaged 1.25 percent over the 2010-2021 period. Since the end of 2021, following the increase in the prices of raw materials, particularly agricultural commodities, the consumer price index rose to 8.3 percent in December 2022, averaging 6.6 percent for the year 2022. However, the consumer price index does not reflect all price pressures because Morocco has a tradition of price regulation. Currently, the prices of 15 groups of products and services (including domestic soft wheat flour, sugar, butane gas, electricity, drinking water, and some transport services) are regulated compared to 80 previously. Hence, the Central Bank has introduced another measure of inflation – that excludes volatile priced food, price-regulated products, and fuels and lubricants. This measure of underlying inflation, totaling 63.1 percent of the basket used to compute inflation, presents a more structural approach. It reached 8.3 percent for the year 2022. Recent estimates also indicate that the subsidies on butane, wheat, and transport softened inflation by 5.9 percentage points in 2022, mitigating the impact of inflationary pressures on the population. However, those subsidies could have benefited the wealthier the most, as their consumption is usually higher than the one of the vulnerable. Their consumption basket is also different with a lower share for food but a bigger one for transport, water, and electricity. Moreover, subsidies carry a significant fiscal cost of more than 3 percent of GDP in Morocco: (i) 42 billion dirhams (USD 4.1 billion) in explicit price subsidies (gas, sugar, and wheat); (ii) 5 billion dirhams (USD 49 million) to support the national water and electricity company.

As part of the medium-term fiscal consolidation introduced in the 2023 finance law, the subsidies on butane gas, wheat and sugar should be phased out by 2025. This reform is concomitant with a comprehensive social reform aiming to strengthen cash transfers to the vulnerable portion of the population. It includes the extension of family allowances to 7 million Moroccan families (2023-2024) and the generalization of basic health insurance to 22 million Moroccans (2022) as well as broadening the base of pension plan members to include employed persons who do not receive any pension. The cost associated with these programs amounts to 51 billion dirhams (USD 5 billion), of which 45.1 percent is financed by the general State budget.

help address inflation, stabilize exchange rates, and attract foreign investment, but can also lead to lower economic growth. With high global inflation, North African countries will need to reconcile the imperative of fighting inflation and the objective of maintaining high GDP growth rates.

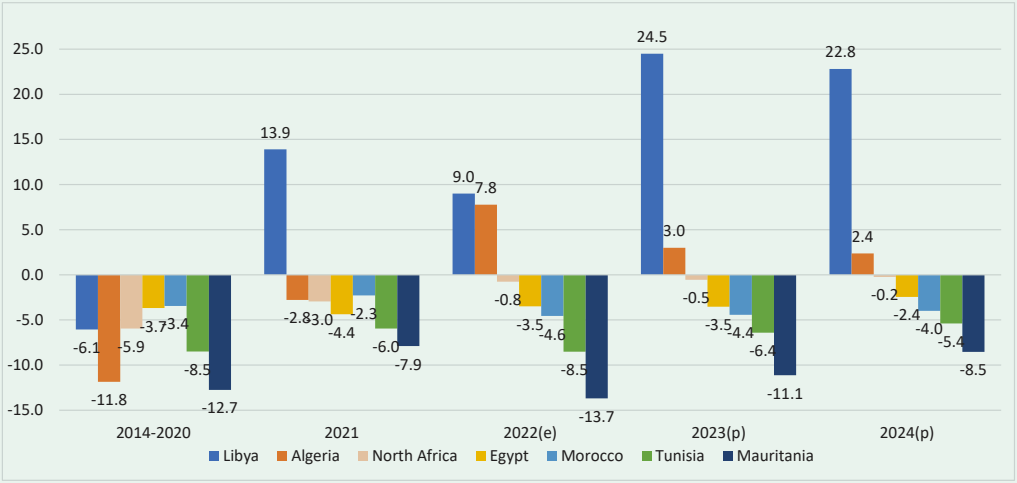
1.2.2 Fiscal positions and domestic resource mobilization

Domestic resource mobilization (DMR) and fiscal position in North African countries have been influenced by various factors such as economic growth, public spending, and tax policies. On the positive side, North African countries have made significant strides in DRM in recent years, with some of them increasing their tax-to-GDP ratios and implementing reforms to improve tax collection and public financial management. The fiscal position of North African countries is varied, depending on: (i) whether the economy is an oil-exporting or an oil-importing country; (ii) the importance of subsidies on food and energy products; and (iii) the debt service burden. Some countries have been able to reduce their fiscal deficits and public debt levels, while others are grappling with high debt burdens and persistent fiscal deficits. The COVID-19 pandemic has also had a long-lasting and significant impact on the region's fiscal position, with some countries adopting expansionary fiscal policies to support their economies and vulnerable populations. To address the challenges of fiscal

consolidation and balance, there is a need for sustained efforts to implement reforms, including improving tax administration, expanding the tax base, promoting private sector growth, and strengthening governance systems to improve transparency and accountability.

In Algeria, recent efforts aim to improve the recovery of tax arrears and leverage digital technologies. The reform of the tax on professional activities and measures to broaden the tax base were initiated in 2022. Combined with increased oil revenues, Algeria recorded a budget deficit of 0.2 percent of GDP in 2022, which marks a significant contrast to the deficit of 6.9 percent of its GDP in 2021. In recent years, Egypt has implemented the government's Medium-Term Revenue Strategy (MTRS), which includes tax policy and revenue administration measures to improve the efficiency and progressiveness of the tax system. Despite an expected increase in total expenditures, mainly due to higher interest payments and social protection targeting, fiscal deficit is set to slightly increase from 5.8 percent of GDP in FY2021-22 to 6 percent of GDP in FY2022-23. While the fiscal balance is negative, the primary balance is positive, reflecting Egypt's very high debt servicing. Libya's fiscal surplus is estimated at 13.8 percent of GDP in 2022 and 22.1 percent of GDP in 2023. According to the Central Bank of Libya, in 2022, 48 percent of the total expenditures were allocated to salaries and administrative expenses, 20 percent to subsidies, and 22 percent to emergency expenditures to the National Oil Cooperation (NOC). The very low budget allocated to public investment and development expenses (1 percent) is due to the political instability and the absence of a national development strategy. The high fiscal surplus allowed the Libyan Government to increase the budget allocated to development. Hydrocarbon revenues play a critical role in financing government expenditures. When oil production falls, so do governments revenues, and the Libyan Government reduces its spending. This calls for important reforms of the tax system and collection mechanisms, which would diversify revenue sources and generate a less volatile fiscal stance. Mauritania recorded surplus fiscal balance

Figure 1.5 Fiscal balance in North Africa by country (% of GDP)



Source: African Development Bank statistics.
Note: Data are estimates for 2022 and projections for 2023–24.

consistently over 2017-2021 until 2022, when it experienced a deficit of 1.2 percent of GDP due to the increase in expenditures, in particular subsidies on energy and food products. Tax-to-GDP ratio increased to 15.5 percent in 2022, but remained insufficient to meet financing needs. The fiscal balance would remain in deficit at 1.9 percent of GDP in 2023 but natural gas exploitation is expected to generate revenue as from 2024, estimated at 0.5 percent of GDP, and reduce financing needs. In the 2023 finance law, Morocco has introduced a range of tax reforms, including simplifying tax procedures, expanding the tax base, and improving tax administration, leading to a rise in tax revenues. As a result, the 2022 fiscal deficit which eased to 5.1 percent of GDP, down from 5.9 percent in 2021, should improve further in the years to come.

The structural drivers of the Tunisian fiscal deficit are to be found in the wage bill, subsidies and debt service which totaled two thirds of total expenditure in 2022, while the share of public investment was only around 10 percent. The fiscal deficit reached a historic level of 8.7 percent of GDP in 2020 under the pressure of financing needs generated by the COVID-19 pandemic. It then decreased to 7.6 percent of GDP in 2021 and to 6.8 percent in 2022. The implementation of the Government's National Reform Plan is expected to improve macroeconomic balances and shrink the fiscal deficit further to 5.2 percent in 2023 and 4.7 percent in 2024.

The implications of the fiscal challenges facing North African countries are significant. High public debt levels and fiscal deficits could lead to reduced public spending on essential services such as education, health, and infrastructure, which could undermine economic growth and development. The outlook for the fiscal position in North African countries is mixed, depending on oil revenues as well as on implemented reforms to improve fiscal positions. However, external shocks, such as fluctuations in commodity prices and climate change, could impact fiscal positions. To address the fiscal challenges facing North African countries, there is a need for sustained efforts to implement reforms that support fiscal consolidation, including improving tax administration and compliance, reducing wasteful public spending, and promoting private sector growth. A key issue for improving the efficiency of the tax system in the countries of the region is digitalization. However, despite some progress, this dynamic is lagging far behind in most North African countries, slowing down government revenues and budget consolidation. Additionally, there is a need for greater regional cooperation and international support. Overall, improving the fiscal position in North African countries is crucial for achieving sustainable economic growth and development, reducing poverty, and promoting social inclusion. The COVID-19 pandemic has highlighted the vulnerability of North African countries to external shocks, especially given their reliance on external financing and exports.

1.2.3 Debt dynamics and implications for growth

North African countries have varying levels of external debt. Some countries, such as Algeria and Libya, have low levels of external debt, while others have relatively high levels. Regional long-term external debt stock reached USD 189.2 billion in 2021. Its structure has shifted from official bilateral and multilateral creditors to increased private sources (bondholders and commercial banks), from a share of 24.4 percent of total long term external debt in 2010 to 42.8 percent in 2021.

Recent upward trends in public indebtedness in North Africa

Most North African countries have borrowed more, both internally and externally, driving up General government gross debt to high levels in recent years, to 61.3 percent of GDP in 2022 (Table 1.3). Apart from Algeria and Mauritania, the other North

African countries recorded higher than 60 percent debt-to-GDP ratio with debt-to-GDP ratios ranging from 68.8 percent in Morocco to 88.5 percent in Egypt. The COVID-19 pandemic has further exacerbated this situation, leading to increased public spending and reduced government revenues. The implications of high public debt levels are significant. High levels of public debt can lead to debt distress and fiscal sustainability concerns, reducing the fiscal space available for investment and public spending. Servicing the debt burden can also limit the government's ability to provide essential services and infrastructure, leading to social and economic challenges. One of the challenges in North African countries is delays in implementing debt management instruments and mechanisms and best practices suggested by international institutions.

Table 1.2 : Debt in North Africa by country, 2010-2022 (percentage of GDP)

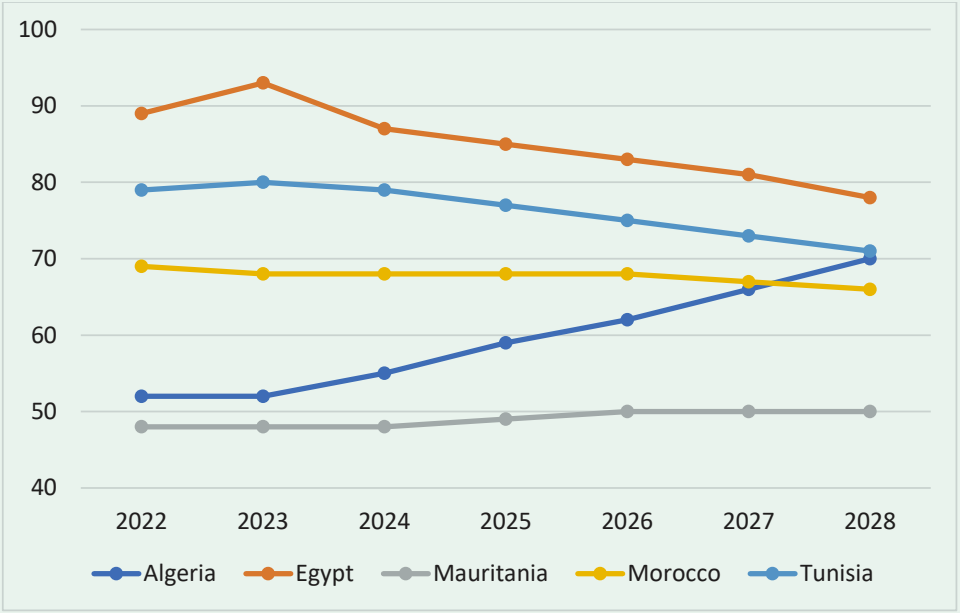
Algeria	**2010**	**2015**	**2018**	**2019**	**2020**	**2021**	**2022**
General government gross debt	10.5	8.7	38.4	46.0	52.0	62.8	52.4
Total external debt	4.5	1.8	2.3	2.2	2.4	1.9	1.6
Egypt							
General government gross debt	69.6	83.8	87.9	80.1	86.2	89.9	88.5
Total external debt	17.1	13.7	35.2	34.2	32.3	32.6	32.8
Mauritania							
General government gross debt	43.9	58.7	57.9	55.7	55.8	50.9	47.7
Total external debt	64.0	64.0	56.9	54.3	54.5	45.6	43.7
Morocco							
General government gross debt	45.3	58.4	60.5	60.3	72.2	68.9	68.8
Total external debt	29.7	39.7	40.5	42.5	54.1	45.4	40.7
Tunisia							
General government gross debt	43.4	52.4	72.9	67.3	77.6	79.9	79. 4
Total external debt	51.4	59.5	80.9	90.9	98.7	87.7	90.6
North Africa general gross debt	38.3	53.6	57.1	58.0	69.4	64.9	61.3
North Africa total external debt	14.5	17.3	27.0	28.4	32.0	30.5	28.8

"Most North African countries have borrowed more, both internally and externally, driving up General government gross debt to high levels in recent years"

IMF (2023), the country is vulnerable to changes in global financial conditions and investor sentiment due to the high share of short-term debt in local currency and its high cost which cause significant refinancing and interest rate risks. The IMF (2022) estimated Egypt's external financing gap at around USD 17 billion throughout the 46-month program approved in December 2022 for a total of USD 3 billion.

Moving forward, the general government debt ratio is expected to decrease from 92.9 percent in 2023 to 78 percent in 2028 (Figure 1.6). In Libya, domestic public debt is manageable as long as oil production and international prices remain high. It was estimated at Libyan dinars (LYD) 156 billion in

Figure 1.6 : General government gross debt in North Africa by country, 2022-2028 (percentage of GDP)



Source: International Monetary Fund, 2023
Note: Information for Libya was not available.

2021 (USD 32.4 billion), equivalent to 83 percent of GDP (World Bank 2022), compared to 155 percent in 2020. Mauritania's risk of debt distress has recently decreased due to primary balance surplus and debt restructuring agreements with Saudi Arabia. The IMF's Debt Sustainability Analysis (DSA 2022) indicated that the risk of external and overall debt distress moved from "high" to "moderate". The IMF (2022) considered that the debt trajectory in Tunisia is unsustainable unless the authorities adopt a strong and credible structural reform program. The country's access to international financial markets is restricted and several rating agencies further downgraded Tunisia's sovereign rating in 2022 and 2023. In October 2022, Tunisia reached a staff-level agreement with the IMF on a USD 1.9 billion rescue package over a 48-month arrangement, which would be the third major IMF program in the country since 2011. However, in June 2023, the program was yet to be approved by the Board.

The issue of State-owned enterprises' contingent liabilities

The indebtedness of State-Owned Enterprises (SOEs) with contingent liabilities is estimated on the high side in North Africa. Many public enterprises have acknowledged financial difficulties for a long time, which were exacerbated by the COVID-19 pandemic and Russia's invasion of Ukraine. Egypt has undertaken various reforms aimed at enhancing debt transparency, including the publication of SOEs' comprehensive reports as an appendix to the budget. Some companies are expected to be restructured to raise additional capital and generate job opportunities, following the expected sale of major shares. In addition, the Government launched in early 2023 the privatization of USD 40 billion worth of 32 State-owned enterprises over the next 4 years to reduce the footprint of the public sector in the economy and give more room to private sector to grow. In Morocco, the sovereign guarantees extended to State-owned

enterprises is estimated at 16 percent of GDP.

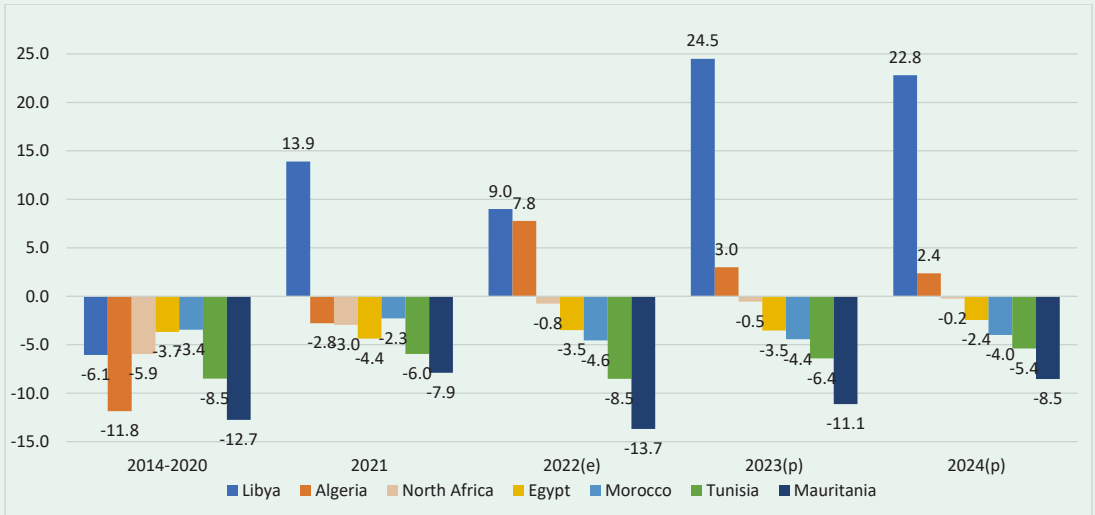
In 2021, the Government created a National Agency in charge of strategically managing State participations and monitoring their performance. In Tunisia, most State-owned enterprises are facing financial difficulties which have increased concerns about banks' exposure to public enterprise risks, in addition to sovereign risks. Their debts vis-à-vis the State reached Tunisian dinars (TND) 9.8 billion (USD 3.1 billion) in 2021 compared to TND 6 billion (USD 1.9 billion) in 2019. In February 2023, Government approved the decree amending the law on shareholdings and governance in public companies. The issue of public enterprises is one of the most important reform challenges in North African countries. Despite some progress, most countries are lagging, which poses major difficulties in their negotiations with IFIs and weighs on macroeconomic balances.

North Africa's debt vulnerabilities are likely to linger. Public debt levels are expected to remain above pre-pandemic levels, as North African countries need additional resources to finance the recovery and meet the growing food and energy import costs. The outlook for debt relief in North African countries will depend on the availability of financial support from international financial institutions and the ability of countries to implement reforms to address the underlying causes of their debt burden. Continued efforts to improve domestic resource mobilization will also be critical. High external debt can have significant negative implications for North African countries, while low external debt can provide greater economic stability and opportunities for growth.

1.2.4 External position and current account balance

In recent years, North African countries have experienced different external positions. The current account level differs across the region; oil-exporting Algeria and Libya experienced a surplus of 7.8 percent of GDP and 9 percent of GDP in

Figure 1.7 : Current account balances in North Africa by country (percentage of GDP)



Source: African Development Bank statistics.
Note: Data are estimates for 2022 and projections for 2023–24.

2022 respectively. In other countries, most current account deficits widened in 2022 under pressure from food and energy imports. Mauritania, Tunisia, and Morocco faced a current account deficit of 13.7 percent of GDP, 8.5 percent, and 4.6 percent respectively in 2022. In Egypt, the current account deficit decreased, estimated at 3.5 percent of GDP in FY2021-22 from 4.4 percent in FY2020-21 due to positive performance in tourism and Suez Canal revenues. At the regional level, the current account deficit (0.8 percent of GDP in 2022) is expected to remain low (0.5 and 0.2 percent of GDP in 2023 and 2024 respectively).

The implications of these external positions are mixed. A current account surplus can provide an avenue for building foreign reserves, while a deficit can lead to reliance on external borrowing. A higher level of gross reserves generally indicates a greater degree of economic stability and resilience, while a lower level suggests greater vulnerability to external shocks and heightens the risk of foreign debt repayment difficulties. The global economic environment, such as changes in trade patterns and foreign direct investment (FDI) flows, will continue to influence the region's external position. In the medium-term, addressing the underlying factors that influence external positions will be critical. This includes promoting economic diversification, improving the business environment to attract FDI, and reducing reliance on remittances. Implementing policies to enhance export competitiveness and address trade imbalances will also be important. Finally, enhancing regional integration, such as through the African Continental Free Trade Area, can provide opportunities for boosting trade and enhancing external positions in North African countries.

1.2.5 External financial flows to North Africa

External financial flows, including remittances, official development assistance (ODA), FDI, and other forms of international financing, play a significant role in the economies of North African countries. These flows have important implications for economic growth, poverty reduction, human capital development, and financial stability in the region. Over the past few years, FDI has been an important source of financing for some countries, particularly Egypt and Morocco, while other countries in the region, such as Algeria and Libya, have been less reliant on FDI. ODA has also been significant, with some countries in the region, such as Tunisia and Morocco, being major recipients. The patterns observed in recent years suggest that remittances have played a significant role in North Africa, particularly in countries like Egypt, Morocco, and Tunisia (Table 1.3).

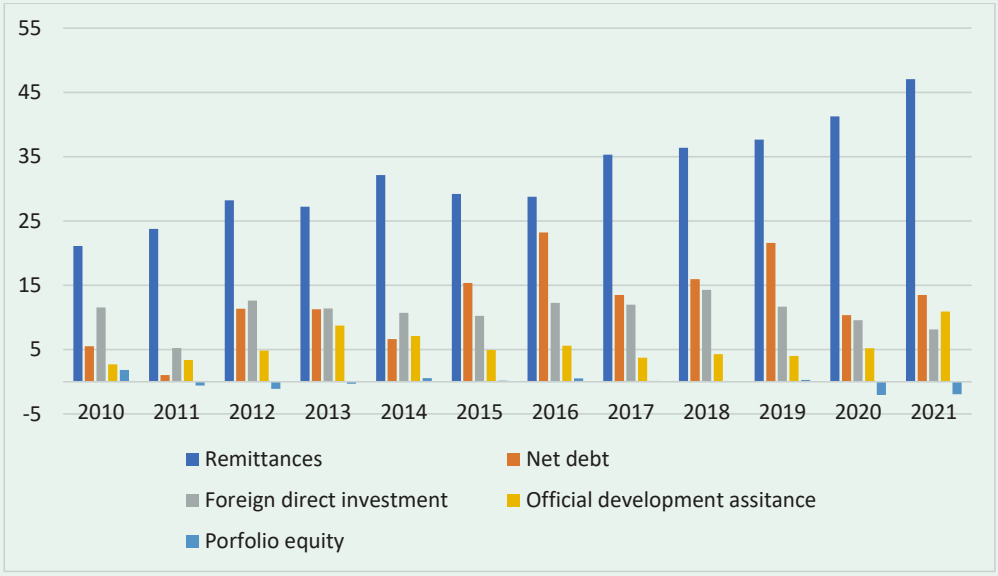
"Remittances have played a significant role in North Africa, particularly in countries like Egypt, Morocco, and Tunisia"

Table 1.3 : Migrants' remittance inflows by country

Migrant remittance inflows (USD million)	2018	2019	2020	2021	2022 (e)	Remittances as a share of GDP in 2022 (%)
Algeria	1 985	1 786	1 700	1 759	1 829	1.0
Egypt	25 516	26 781	29 603	31 487	32 337	6.9
Mauritania	60	64	169	169	168	1.7
Morocco	6 919	6 963	7 414	10 705	11 401	8.0
Tunisia	1 902	2 050	2 367	2 195	2 085	4.5

Source: KNOMAD data, https://www.knomad.org/data/remittances
Note: Data for Libya was not available.

Figure 1.8 : Financial flows to North Africa by type, 2010-21 (in USD billion)



Source: World Bank (2022); World Development Indicators (WDI); Staff computation
Note: Libya was not included

They have accounted for a great share of finance inflows in North Africa, above 60 percent of total inflows. The average remittances received in 2022 was USD 32.3 billion for Egypt (about 7 percent of GDP), USD 11.4 billion (8 percent of GDP) for Morocco, and 2.1 billion (4.5 percent of GDP) for Tunisia. Remittances can provide a critical source of income for households and can help them build resilience to shocks before and after they occur. Additionally, enhancing financial inclusion and reducing transaction costs can help maximize the impact of remittances on poverty reduction, private sector development, and economic development.

FDI inflows to the region were moderate in 2021 reaching USD 8.82 billion against USD 9.99 billion in 2020, with Egypt and Morocco being the largest recipients (Figure 1.8). In 2021, the total ODA inflows to North Africa were USD 10.9 billion mainly from multilateral organizations such as the World Bank, the African Development Bank, and the United Nations Development Program. Assistance to the region increased significantly in 2021 because of the COVID-19 crisis. Egypt and Morocco were the largest recipients of ODA inflows in North Africa. Portfolio investment played a minor role in the finance flows to the region. Its net contribution to the financing scheme was negative during 2020-21, estimated at roughly USD 2 billion.

The implications of these external financial flows vary depending on the type of flow and the recipient country. For instance, FDI can help spur economic growth and development. However, reliance on external financing can also make countries vulnerable to external shocks, such as changes in global economic conditions. In the medium-term, addressing the underlying factors that influence external financial flows will be critical. This includes implementing policies to attract FDI and promote economic diversification, as well as improving the business environment and addressing governance issues to enhance the effectiveness of ODA.

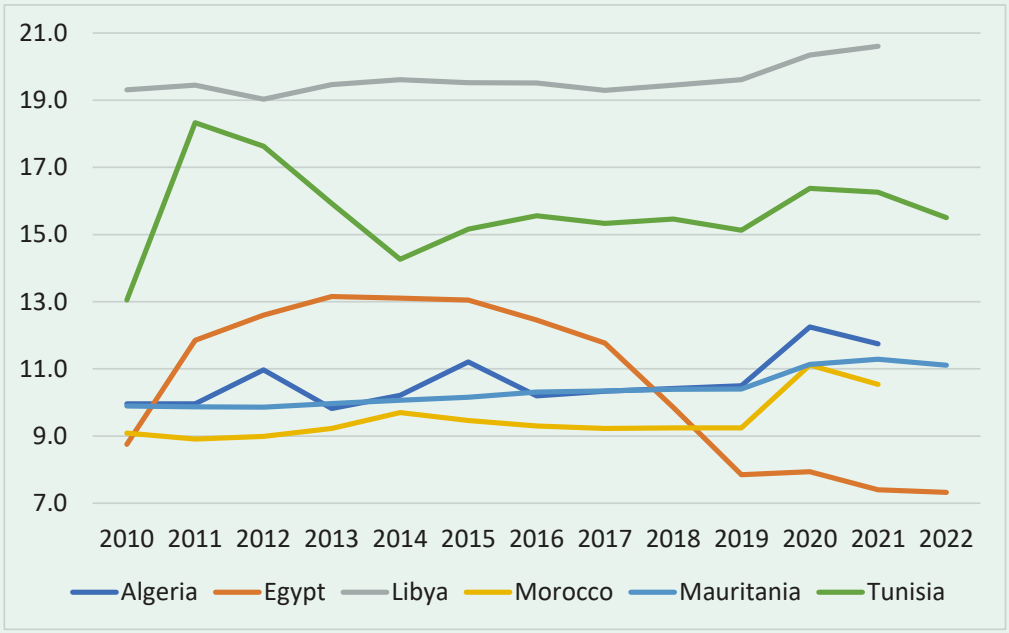
1.3 Socioeconomic effects of rising food and energy prices

The rising food and energy prices in North African countries have significant socio-economic effects. On extreme poverty and inequality, they increase the cost of living, making it more difficult for households to meet their basic needs. The extremely poor, who already struggle to make ends meet, are likely to bear a disproportionate burden of these price increases. This can widen purchasing power gaps between the rich and the poor, leading to increased inequality, food security issues, malnutrition, and increased vulnerability to health issues. Additionally, the rising cost of electricity, water, and transportation can have a significant impact on small businesses and further exacerbate unemployment. In oil importing countries (Mauritania, Morocco, and Tunisia), the energy bill is expected to aggravate the trade balance and increase spending. However, the region has immense potential to meet its own energy needs and to export oil and gas to the European Union, given its willingness to reduce its dependence on Russia's oil and gas.

1.3.1 Unemployment, poverty, and inequality in North Africa

The incidence of poverty and unemployment in North Africa has recently trended upward. The combination of the economic contraction during the pandemic and the rising food and energy prices has led to a significant increase in poverty across the region due to job losses, business closures, disruptions in government services, and food insecurity. The poverty headcount at USD 5.50 a day has increased in all North African countries, albeit from a low base (AfDB, 2021). It increased most in Tunisia, from 2.4 percent of the total population in 2019 to 4.2 percent in 2021, followed by Algeria (2.2 percent to 3.3 percent),

Figure 1.9 : Unemployment rates in North African countries, 2010-21



Source: World Development Indicators, https://databank.worldbank.org/source/world-development-indicators

and Morocco (4.9 percent to 6.2 percent). Egypt witnessed a high poverty headcount that rose from 24.1 percent to 30.5 percent over the same period 2019-2021.

While bold economic reforms have improved access to public and social services, inclusive growth remains a challenge due to inequality and high poverty levels, particularly among marginalized groups. Enhancing economic and social inclusiveness will therefore require sustained efforts to address inequality and promote inclusive growth.

Unemployment, which was already high before COVID-19 pandemic, has worsened (Figure 1.9). North Africa has recorded unemployment rates among the highest in the world, considered as a structural rather than a cyclical challenge, and affecting mainly young people, new entrants to the labor market, and highly educated people with substantial gender gaps. Young women face unemployment rates of up to 40 percent in many countries in the region, exceeding those of young men by about 20 percentage points. In addition, more than half of the workforce is employed in the informal sector, typically working without any formal arrangement or social insurance (Cardarelli R. et al. 2022).

While public interventions have mitigated the worst effects of the pandemic, welfare loss is expected to have long-lasting effects. The ongoing uncertainty brought about by the war between Russia and Ukraine and its implications on food and energy prices and food security are expected to push additional households into poverty and unemployment, with the risk for the most vulnerable to be caught in a trap. Addressing the underlying factors that contribute to these issues, such as promoting sustainable and diversified agriculture, investing in renewable energy, and improving regional stability, will be critical in mitigating the negative impacts of rising food and energy prices in North African countries. Additionally, policies focused on social protection, such as cash transfers and food subsidies, can help support the most vulnerable segments of society during times of economic stress.

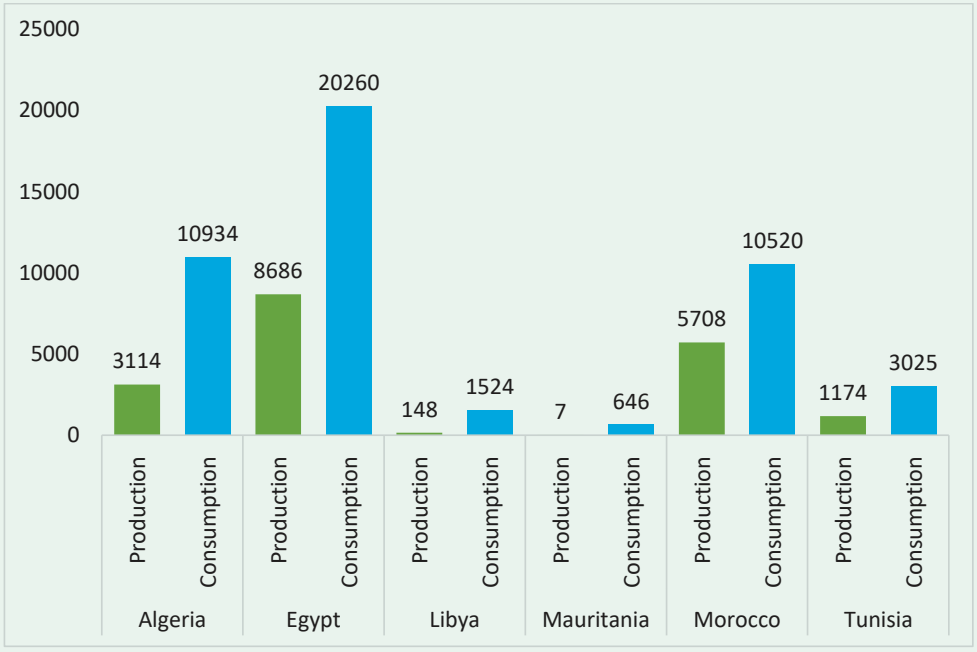
1.3.2 Food security and undernourishment

Given its geographical proximity and close economic links to Europe, the North Africa region has been strongly impacted by the Russia-Ukraine conflict. This global shock has reverberated across the region at a time when country policy space to respond was minimal.

In North Africa, wheat is the major staple with a growing demand, reflecting high population growth and the shifting dietary patterns linked to urbanization with a preference for bread, biscuits, and pasta. Annual wheat consumption increased by 1.8 percent on average over 2017-2021. Consequently, countries of the region heavily rely on imported wheat to fill the gap between the domestic production and consumption (Figure 1.10). The recent disruption in global wheat supply combined with price hikes of cereals, fuel, and agricultural inputs such as seeds and fertilizers, has threatened North African countries' food security.

North Africa, which is a water stress and arid region and highly exposed to climate change risks, depends heavily on imports of food products (AfDB, 2022). The region is largely impacted by the rising temperatures and extreme weather events. The decrease in precipitation levels is likely to be accompanied by frequent and intensified droughts. The agricultural sector is likely to be affected by a decrease in crop yields due to degradation of soil quality and productivity, leading to food insecurity. As large importers of wheat, corn, and vegetable oil (previously from Russia and Ukraine), the countries have suffered from the disruption of the international market. For instance, Egypt, the world's biggest wheat importer, bought up to 82 percent of its wheat from Russia and Ukraine. The dependency of Libya

Figure 1.10 : Wheat production and consumption in North Africa (average 2017-2021, in thousand metric tons)



Source: FAO 2023, FAOSTAT for wheat production and IndexMundi for consumption.
Note: Wheat consumption for Mauritania is proxied by the sum of production and import.

"The recent disruption in global wheat supply combined with price hikes of cereals, fuel, and agricultural inputs such as seeds and fertilizers, has threatened North African countries' food security"

Box 1.3 : Insufficient wheat production in North Africa

In terms of land allocation, wheat is the most widely cultivated crop in the region with a total harvested area of around 6.9 million hectaress. However, wheat production varies with climatic conditions, soil, and crop management methods. For instance, high wheat production yields cannot be achieved in dry years. Due to climate change events, the average wheat yield in the region was estimated at 2.6 tons per hectares over 2017-21, compared to a global average of 3.3 tons per hectares. In Egypt, wheat yields, estimated at around 6.5 tons per hectares, are high compared to other countries. The improved yield performance is based on the effective use of inputs (quality seed, fertilizers, agro-chemicals) and best bet agronomic packages from planting to post-harvesting management. As indicated in Figure 1.10, the countries in the region produced a total of 18.8 million tons of wheat on average over the 2017-21 period , while total consumption was estimated at 46.9 million tons, equivalent to a self-sufficiency ratio of only 40.2 percent at the regional level with high differences across North African countries, ranging from 54.3 percent in Morocco to 1.1 percent in Mauritania. Egypt is the world's largest wheat importer with about 9 to 10 million tons of imports annually and among the leaders in wheat consumption per capita (more than a third of total required calories).

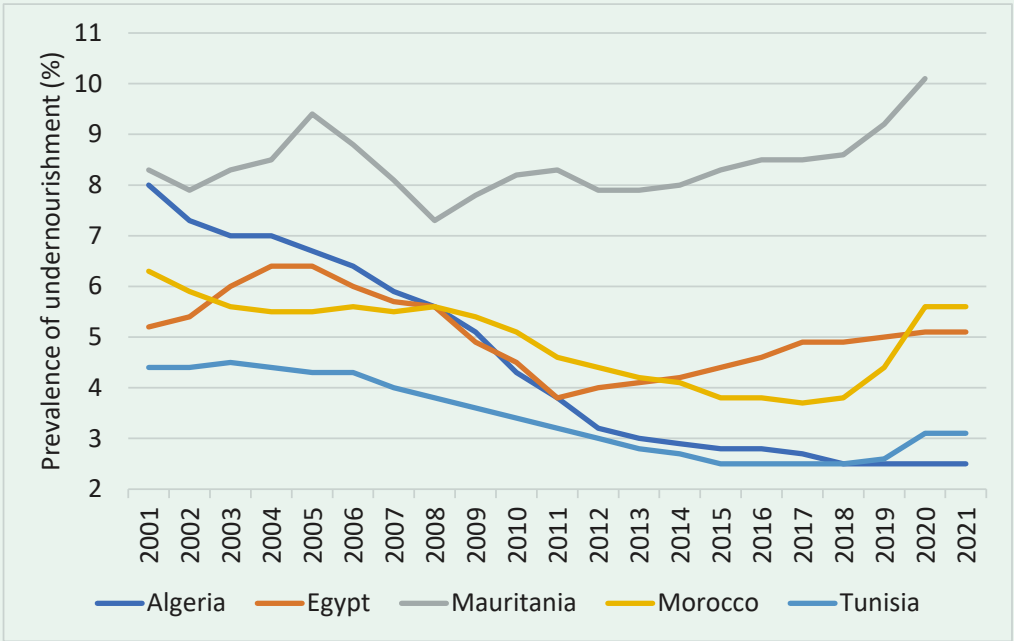
There is enormous potential to increase wheat production in North Africa both vertically and horizontally. In addition, it is crucial to keep wheat stored in silos and in appropriate conditions to protect it from damage and loss caused by dust, rain, and sun. Holding strategic grain reserves will not only encourage farmers to increase wheat production, but it also plays an important role in addressing food price hikes.

and Tunisia stood at roughly 65 percent. Mauritania and Morocco's cereal import dependency was at around 43 percent and 36 percent respectively (FAO, 2022).

Before Russia's invasion of Ukraine in 2022, North Africa already struggled with food insecurity with about 8.2 million people undernourished in 2020. Following the COVID-19 pandemic, the prevalence of undernourishment increased in all countries of region except for Algeria where it registered a slight decrease to reach 2.5 percent in 2021 (Figure 1.11). More recently, the region has faced a shortage of essential food items, especially wheat, maize, and soybeans.

The prevalence of undernourishment is more acute in Mauritania (above 10 percent of the population), mainly caused by the desert expansion and an increased rainfall deficit. More than 990 000 people were projected to face food insecurity (Integrated Food Security Phase 3[3]) during the 2023 post-lean season. Egypt, a nation of more than 106 million people, finds itself at the heart of food security issues as the agricultural sector does not produce enough wheat and oilseeds to meet even half of the country's domestic demand. The Government is supporting the agricultural sector under the second phase of its structural reform program, as well as ensuring food security for the most vulnerable communities under the Decent Life Initiative. In Morocco, the prevalence of undernourishment witnessed a sharp increase with the 2020-21 drought, the worst one in at least four decades. Prevalence in Tunisia is expected to rise with the 2022-23 drought which decimated the production of durum wheat. In post-conflict Libya, food insecurity is a rising concern (Box 1.4). High food prices are expected to continue in the medium term. They will impact North African

Figure 1.11 : Prevalence of undernourishment in North Africa (% of total population)



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

[3] The FAO Integrated Food Security Phase Classification encompasses five distinct phases: (1) Minimal/None, (2) Stressed, (3) Crisis, (4) Emergency, (5) Catastrophe/Famine.

countries' trade balances and fiscal deficits, generate popular discontent, and push additional people into poverty. Subsidies on basic food products have been maintained in North African countries as a poverty alleviation measure. These developments on food security issues and the effects on populations also raise the essential issue of the agricultural development model. This model oriented towards export crops that require a lot of water needs to be reviewed.

1.4 Policy options to address rising inflation, subdued growth, and increased debt vulnerabilities

North African economies demonstrated macroeconomic recovery paths after the significant economic and social disruptions inflicted by the COVID-19 pandemic in 2020. Yet, the spillover effects of the Russia-Ukraine crisis, extended droughts, and tightening global financial condition reversed these gains in 2022 and resulted in additional economic and social challenges, with shocks likely to cascade through interlinked agriculture, food, and energy systems. The disruptions of global supply chains and pressure on commodity prices have instigated negative effects on the region, especially for countries dependent on food and energy imports, leaving them vulnerable to economic shocks. Regarding policy recommendations, these multiple shocks call for a multipronged approach to chart a policy agenda for more resilient and sustainable economic recovery in North Africa and to address the immediate challenges to protect people, economic growth, and stability. This would entail a combination of a range of policies.

Box 1.4 : Food insecurity, a rising concern in Libya

In Libya, agriculture and food distribution systems have been significantly affected by almost a decade of conflict and political instability, resulting in increased food insecurity and malnutrition. According to the FAO (2023), the number of moderately or severely food insecure people was 2.7 million during 2019-2021, exacerbated by the increase of international food prices during the COVID-19 pandemic followed by Russia's invasion of Ukraine. The overall cost of the food basket increased by 18 percent between January to October 2022. With the reduced supply of cereals, the prices of flour (+19 percent), bread (+34 percent), couscous (+76 percent) and pasta (+50 percent) have significantly increased, while the price of vegetable oil has increased by 36 percent. The food security situation, which has been very fragile, is likely to worsen with the prolonged global supply chain disruption and price soaring. The productivity of the agriculture sector in Libya has been hampered by harsh climatic conditions, poor soil quality, and limited renewable water resources. However, there is enormous potential for developing the agricultural sector through improved soil fertility, diversification into high value-added crops, efficient use of irrigation and desalinated water, and development of infrastructure for storage and agro-processing business. The Ministry of Economy and Trade is preparing a short- and long-term Food Security Strategy with the aim to increase local cereal production, especially wheat, and promote seed cultivation locally. Domestic cereal production covers only 5 percent of the population' needs, resulting in a high reliance on imported cereals to meet the country's needs. Libya imports about 90 percent of food to meet its local needs.

Short-term policies

Monetary and fiscal policies, and policy coordination to address rising inflation

Rising inflation in North African countries is a major concern for policymakers, as it can have significant impacts on economic growth, social welfare, and political stability. Addressing this issue requires a coordinated policy response that integrates monetary and fiscal policies to

ensure a comprehensive and effective approach. Monetary policy can play a key role in addressing rising inflation by adjusting interest rates to control money supply and inflation expectations. Central banks in North African countries may consider implementing tighter monetary policies, such as raising interest rates, to reduce inflationary pressures. However, the effectiveness of monetary policy may be limited by factors such as exchange rate dynamics, financial market developments, and structural rigidities. Also, such policies must combine price and output objectives, given the significant effects on aggregate demand. Financial support can mitigate the effects of increasing basic commodities and energy bills on households and businesses. A coordination among fiscal, monetary, and exchange rate policies may help to closely monitor the direction, speed, and magnitude of capital flows and their effects.

As the debt burden of some economies in North Africa is highly sensitive to interest rate and exchange rate trends, thereby increasing the risk of a liquidity crisis, a credible fiscal framework would reduce the risks of debt distress. Fiscal policy should contribute to addressing rising inflation by managing public spending and ensuring a sustainable fiscal position. Fiscal authorities may consider adopting gradual measures to increase tax revenues and improve the efficiency of public services, such as subsides reform. However, the effectiveness of fiscal policy may also be limited by factors such as political constraints, social welfare concerns, and external shocks.

Policy coordination is essential to ensure a coherent and effective policy mix in addressing rising inflation in North African countries. The success of such a policy mix depends on the ability of policymakers to navigate the complex economic and social challenges facing North African countries, while also maintaining a long-term perspective on sustainable growth and development.

Enhancing social safety net and social protection programs, as well as food security

North Africa needs to consider measures to maintain welfare and counteract inflationary forces which reduce consumer purchasing power and exacerbates poverty and inequalities in the region. Special attention should be paid to the poorest to ensure food security and protect their purchasing power through access to basic products and social programs. Despite limited fiscal space, public social safety net programs should better target vulnerable populations and reduce the impact of rising inflation on the poor. These programs should be thus implemented as a response to crises, but also be put in place using a prevention approach to reinforce the resilience of the most vulnerable before the occurrence of shock. This could include increasing cash transfer programs or food subsidies to households, expanding social insurance programs, and creating job opportunities through public works projects. Furthermore, the countries of the region should enhance the efficiency and effectiveness of social protection, to ensure that individuals and households have access to health care, education, and other basic needs. This could include expanding access to health insurance or improving access to education for marginalized populations. Algeria has allocated allowances to the unemployed population. In Morocco, the government has launched a vast social protection program aiming for the medical coverage of 22 million Moroccans by 2025 by broadening the base of beneficiaries, which could also lead to reduction of the informal sector. Additionally, family allowances are to be generalized in 2023 and 2024 and the number of pension plan members should increase. Mauritania has put in place Taazour, an ambitious program to support the poorest and promote socio-economic inclusion and better living conditions. These ambitious targeted transfers should potentially lower the fiscal costs of the price subsidies scheme and further entrench

macroeconomic stability and enable stronger private sector-led growth.

Maintaining and supporting food security in the region should remain a crucial objective. The expected high food import bills should fuel interest in food grain production in North Africa. The World Food Program (2022)[4] estimated that 1.3 million people, out of almost a total population of 7 million, need food assistance in Libya. Improving infrastructure such as irrigation systems and transportation networks and promoting access to credit for small and medium-sized enterprises in the agriculture sector can help to boost economic growth and create jobs. Adoption and dissemination 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. These measures enable agricultural systems to be more resilient to climatic shocks, maintaining productivity, as well as preventing crop failure and shortages and related short-term price spikes. Increased investment in agri-business will expand the productivity of agriculture and value addition to consumable products and reduce the dependence on imports. With the 2022-23 drought, Tunisia should undertake urgent measures to secure the availability of cereals, fertilizers, and hydrocarbons, particularly by building up security stocks.

Medium-term policies

Structural reforms and economic diversification for long-term sustainable growth

In most North African countries, macroeconomic stabilization and inflation priorities have taken precedence over other key priorities. It is necessary to rebalance these choices and give priority to the issue of sustainable economic recovery. Structural policies can play a critical role in addressing supply-side constraints, promoting productivity, and enhancing competitiveness. Structural reforms can include measures to improve infrastructure, increase labor market flexibility and skills of the labor force, promote trade and investment, and enhance the business climate. These reforms help to reduce production costs, increase output, and stimulate economic growth. Economic diversification and structural transformation are imperative in most North African countries to limit their vulnerability to price fluctuations on the international markets. For instance, Algeria's and Libya's low economic diversification and high dependence on hydrocarbons continue to weaken their economies, which remain highly vulnerable to shocks.

The countries of the region should undertake priority structural reforms to enhance resilience to external shocks through private sector development and export diversification. Governments can work to attract foreign investment by offering tax incentives, reducing bureaucratic hurdles, and improving the legal and regulatory environment. They can improve intra-regional trade and export diversification by developing new export markets, particularly under AfCFTA, improving the competitiveness of export industries, and reducing trade barriers. This would increase foreign exchange earnings. The weak regional cooperation in North Africa has weighed on the region's efforts to cope with the effects of exogenous shocks. For example, oil-exporting countries could have helped other North African countries to deal with the shortage of reserves.

Regarding the debt burden, North African governments should address the rising public debt levels over the medium term by allocating debt money transparently to enhance public finance management and accelerate domestic resource mobilization. Governments should strengthen economic governance by improving transparency, accountability, and the rule of law. This can help to promote a business-friendly environment, which can in turn stimulate economic growth. For instance, it is important for Egypt to continue

[4] https://docs.wfp.org/api/documents/WFP-0000142815/download/

lengthening the maturity of its debt and diversifying its investor base to manage and mitigate its rollover risk. In many North African countries, this also entails restructuring State-owned enterprises in difficult situations and conducting regular public expenditure reviews.

2

PRIVATE SECTOR FINANCING FOR CLIMATE AND GREEN GROWTH IN NORTH AFRICA

KEY MESSAGES

- Given North Africa's significant climate change and environmental challenges, financial needs to appropriately address climate and green growth are substantial. Considering green growth financial needs, an annual investment of USD 183 billion in renewable energy is required between 2015 and 2030 to achieve North Africa's renewable energy targets.

- The implementation of North Africa's climate action plan, as outlined in the countries' National Determined Contributions (NDCs), is estimated to require an annual investment of USD 25.7 billion up to 2030. However, only 20 percent of the required amount has been financed. The national governments have pledged only 13 percent of the total budgets required to implement NDCs in North Africa.

- At the regional level, bilateral donors have been the main sources of climate funds, accounting for about 80 percent of the total flows. Contributions from North African public sector account for 18 percent, while the remaining 2 percent came from the private sector.

- Green growth in North Africa can be achieved through various strategies and initiatives, particularly investments in renewable energy infrastructure, sustainable agriculture, green transport, and sustainable waste management. It also involves policies and regulations that incentivize and enable sustainable investments, such as carbon pricing, green financing mechanisms, the elimination of detrimental subsidies, and sustainable procurement practices.

- North Africa's climate ambitions have the potential to contribute to green growth in the region by creating new business opportunities and jobs, increasing energy security, promoting economic diversification and competitiveness, and improving environmental quality, while also reducing greenhouse gas emissions.

- Abundant sunshine, offshore wind capacity, and hectaress of uninhabited land are all factors that highlight North Africa's potential to become the world's leading green hydrogen producer. However, market-based partnerships are required to enable mass-scale domestic and global off-take and demand for green hydrogen and increase cooperation to design, finance, build and operate green hydrogen production, storage, and distribution infrastructure.

- Several factors contribute to the huge private sector financing gap for climate action and green growth in North Africa, particularly lack of clear and consistent policy frameworks, insufficient regulatory frameworks, and limited access to finance and investment opportunities. These challenges create barriers for private sector investors and make it difficult to attract capital for sustainable investments.

- The need for private sector financing for climate action and green growth in North Africa is urgent and undeniable. It requires concerted efforts from all sectors and actors to achieve a sustainable and resilient future. Leveraging progress towards green growth requires that North African governments, foreign and domestic private investors, multilateral development banks (MDBs) and development finance institutions (DFIs) work together. Innovative financing instruments and mechanisms will be needed to leverage private sector financing. It includes social bonds, green bonds, sustainability-linked bonds, carbon markets, debt-for-climate and nature swaps, and blended finance.

2.1 The imperative for green growth and the role of private sector financing

With the urgent challenge of climate change and the depletion of natural resources, there is a growing imperative for businesses and governments to act toward sustainable and green growth. While government policies and regulations are important drivers of sustainability, the private sector has a critical role in financing and implementing green growth initiatives. In this context, understanding the imperative for green growth and the role of private-sector financing is becoming increasingly important.

2.1.1 Commitments towards green growth and its importance in North Africa

North African countries remain committed to green growth. In addition to the policies and initiatives, in 2016, Algeria, Egypt, Libya, Mauritania, Morocco, and Tunisia signed the Paris Agreement on Climate Change together with 191 other Member States of the United Nations Framework Convention on Climate Change (UNFCCC), to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. Libya has yet to ratify the Paris Agreement, but several North African countries submitted their first NDCs between 2015 and 2017; Morocco, Tunisia, and Mauritania submitted updated NDCs in 2021 and Egypt in 2022 (IRENA, 2023). The countries have developed National Determined Contributions (NDCs). They committed to reduce national emissions from the major Greenhouse Gas (GHG) emitting sectors of the economies and adapt to the impacts of climate change; thereby ensuring climate-compatible growth. The most ambitious and detailed NDC in the region is Morocco's, which calls for renewable power plants to make up 52 percent of installed capacity by 2030 (Table 2.1). As for Mauritania, while its first NDC did not contain any quantified renewable energy objectives, the updated version includes ambitious unconditional targets, such as reaching 50.3 percent of renewables in its energy mix by 2030. Ambitious renewable energy targets were also set in Algeria's and Tunisia's NDCs, which aim to reach 27 percent and 30 percent electricity generation from renewables by 2030, up from 1 percent and 4 percent at present. However, almost all the renewable energy targets of these two countries are conditional, and their aim to multiply the national renewable power generation capacity by more than ten will depend on external financing conditions. In contrast, Libya has not yet submitted an NDC, and Egypt has not provided any quantified renewable energy targets.

Table 2.1 : Power-sector-related targets in North Africa as reflected in recent national plans and Nationally Determined Contributions

Country	National plans and commitments
Algeria	• Ratified the Paris Agreement on 20 October 2016. • The Nationally Determined Contribution (NDC) aims to reduce greenhouse gas (GHG) emissions by 7 percent (unconditional) to 22 percent (conditional) by 2030, compared to a business-as-usual scenario. • The Renewable Energy and Energy Efficiency Development Plan 2016-2030 and the NDC set a conditional target of 27 percent of electricity generation from renewables by 2030.
Egypt	• Ratified the Paris Agreement on 29 June 2017. • The NDC defines "increased use of renewable energy as an alternative to non-renewable energy sources" as one of the five pillars of mitigation policies. Targets include emission reductions of 33 percent in the electricity sector (power generation, transmission, and distribution), 63 percent in the oil and gas sector, and 7 percent in the transport sector. • The Integrated Sustainable Energy Strategy 2035 calls for renewables to make up 42 percent of the electricity mix by 2035.

Libya	• Signed but has not ratified the Paris Agreement. The country has not submitted an NDC.
Mauritania	• Ratified the Paris Agreement on 27 February 2017. • The NDC, updated in October 2021, sets a target of reducing greenhouse gas (GHG) emissions by 11 percent (unconditional) to 92 percent (conditional) by 2030, compared to a business-as-usual scenario. • The renewable energy targets in Mauritania's NDC are unconditional and include reaching 13 gigawatts (GW) of renewable capacity by 2030 (including the capacity to produce hydrogen for export) and increasing the share of renewables in the energy mix to 50.3 percent by 2030.
Morocco	• Ratified the Paris Agreement on 21 September 2016. • The NDC, updated in June 2021, aims to reduce GHG emissions by 18.3 percent (unconditional) to 27.2 percent (conditional) by 2030, compared to a business-as-usual scenario. • The renewable energy targets in the NDC include reaching 52 percent of installed power capacity from renewable energy by 2030, of which 20 percent from solar, 20 percent from wind, and 12 percent from hydropower. • The National Energy Efficiency Strategy aims to reduce energy consumption by 20 percent by 2030 compared to a business-as-usual scenario.
Tunisia	• Ratified the Paris Agreement on 10 February 2017. • The NDC, updated in October 2021, aims to reduce carbon intensity by 27 percent (unconditional) to 18 percent (conditional) by 2030, compared to 2010 as the base year. The NDC includes the target of 30 percent renewable electricity by 2030 (up from 2.6 percent in 2020). • The National Renewable Energy Action Plan 2018 targets a 3.8 GW capacity for renewables by 2030.

Source: Authors, based on AfDB (2022); IRENA (2023); IEA (2021); UNFCCC (2021)

The countries also adopted measures for sustainable growth. There is a notable focus in many national and regional policies on the importance of promoting sustainable agriculture practices, such as crop diversification, soil conservation, and water management. The countries have also set targets for improving energy efficiency in buildings, industry, and transport and developed plans to adapt to the impacts of climate change, such as increased water scarcity and extreme weather events. Algeria has developed a National Climate Plan (NCP) that includes measures to increase water efficiency, promote sustainable agriculture, and reduce greenhouse gas emissions. Tunisia has adopted a national strategy for climate-resilient agriculture 2014-20 and has also developed a Green Economy Strategy (yet to be ratified). Policies also highlight the need to transition towards a circular economy, which emphasizes resource reuse, repair, and recycling.

The transport sector is a significant contributor to greenhouse gas emissions in North Africa. Many countries in the region are promoting sustainable transport, such as public transport, cycling, and electric vehicles. For example, Morocco has launched a national plan to promote the use of electric vehicles, while Tunisia has implemented a public transport reform program and the Sustainable Urban Transport Project aims to improve the efficiency and sustainability of the urban transport sector. By 2030, electric vehicles are expected to make up 10 percent of passenger vehicle sales in North Africa. By pursuing these pathways, North African countries can achieve sustainable development that balances economic, social, and environmental priorities.

Green growth in North Africa is vital due to the region's high vulnerability to climate change and its impacts, including water scarcity, desertification, food insecurity, wildfires, and sea-level rise, which threaten economic growth and social stability. The imperative for green growth in the region is driven by the need to address the impacts of warmer and longer summers, more frequent and extreme heat waves, and changed precipitations, to reduce greenhouse gas emissions, and to promote sustainable economic development. In North Africa, rising temperatures associated with climate change are expected to reduce the land areas suitable for agriculture, shorten the length of growing seasons, and reduce crop yields. The green growth transition could eventually lower the disparities among the North African countries in terms of income levels in that, given their solar, wind, and hydropower potential, most countries in North Africa have the potential to become regional and global renewables powerhouses—though for that they will have to change their energy systems, which rely on fossil fuels. Many North African countries have also implemented energy efficiency policies and programs, such as building codes and standards, public awareness campaigns, transport systems, and specific financial incentives. For example, Algeria has adopted building codes that require energy-efficient design and construction practices, while Egypt has launched a national program to promote energy-efficient lighting (World Bank, 2020). According to the IEA (2019), energy efficiency measures could reduce energy demand in North Africa by 12 percent by 2040.

2.1.2 Opportunities for green growth in North Africa

North Africa is a region with significant opportunities for green growth, particularly in the areas of renewable energy, sustainable agriculture, and sustainable tourism. North Africa has the potential to develop up to 80 gigawatts (GW) of solar power by 2030 (IEA, 2019). In addition, wind energy development in North Africa has also shown significant potential, particularly in Egypt and Morocco (World Bank, 2019). Morocco is among the global front runners leading the transition toward greener and more inclusive economies. According to the World Bank (2018), sustainable agricultural practices in North Africa, such as conservation agriculture and agroforestry, can improve food security and soil fertility, and promote economic growth, particularly for smallholder farmers. Furthermore, North Africa has a rich cultural and natural heritage, which can be leveraged for sustainable tourism development such as ecotourism, cultural tourism, and nature-based tourism (UNEP, 2017).

Abundant sunshine, offshore wind capacity, and acres of uninhabited land are all factors that highlight North Africa's potential to become the world's leading green hydrogen producer. The African Energy Council (2023) shows that green hydrogen is economically viable at EURO 2 / kg and can expedite low-carbon economic growth across the continent and reduce emissions by 40 percent, eliminating approximately 500 million tons of carbon dioxide a year. The analysis of investment opportunities prioritizes four hubs in Africa, including three in the North African region: Egypt, Mauritania, Morocco, and Southern Africa. Similarly, the Africa Green Hydrogen Alliance (AGHA)—comprised of Morocco, Mauritania, Namibia, Egypt, South Africa, and Kenya—was launched in May 2022 and hoped to expand its membership. Among the alliance's members, Morocco is well positioned to be a regional leader in a green hydrogen economy, ranking alongside the United States, Saudi Arabia, Australia, and Chile as the five countries most likely to produce cost-competitiveness. To accommodate a rise in green hydrogen production and support other net-zero goals, Morocco aims to increase renewables' share of power generation to 52 percent by 2030, 70 percent by 2040, and 80 percent by 2050. Algeria has the largest wind energy potential on

"By 2030, electric vehicles are expected to make up 10 percent of passenger vehicle sales in North Africa."

the continent—approximately 7,700 GW if fully developed—and has released plans to expand renewable energy production to 15 GW by 2035, with an annual growth rate of 1 GW. Mauritania's combined solar and wind potential would exceed 500 GW if fully developed[5].

Green hydrogen is a promising technology for supporting green growth and bridging climate financing in North Africa. The resources in North Africa are vast, only 8 percent of the Sahara Desert covered with solar panels is required to produce 155 000 Terawatt-hour (TWh), which is all the energy the world requires (van Wijk et al., 2017). IRENA (2020) estimates that North Africa could produce up to 3 000 terawatt hours (TWh) of green hydrogen annually by 2050, which could meet a significant portion of the region's energy needs and support regional energy integration and export. Furthermore, while supporting green growth and reducing reliance on imported fossil fuels, green hydrogen will provide a new source of revenue for North African countries by exporting to Europe and other regions and serving the local needs to foster industrialization. As regards job creation, the development of a green hydrogen industry in North Africa could come with up to 180 000 direct jobs and 900 000 indirect jobs by 2050. IRENA (2020) also suggests that green hydrogen could bridge climate financing gaps in North Africa, attracting private sector investment and international climate financing to the region, and thereby supporting the development of green hydrogen projects and other renewable energy initiatives.

"North Africa could produce up to 3 000 terawatt hours (TWh) of green hydrogen annually by 2050, which could meet a significant portion of the region's energy needs and support regional energy integration and export."

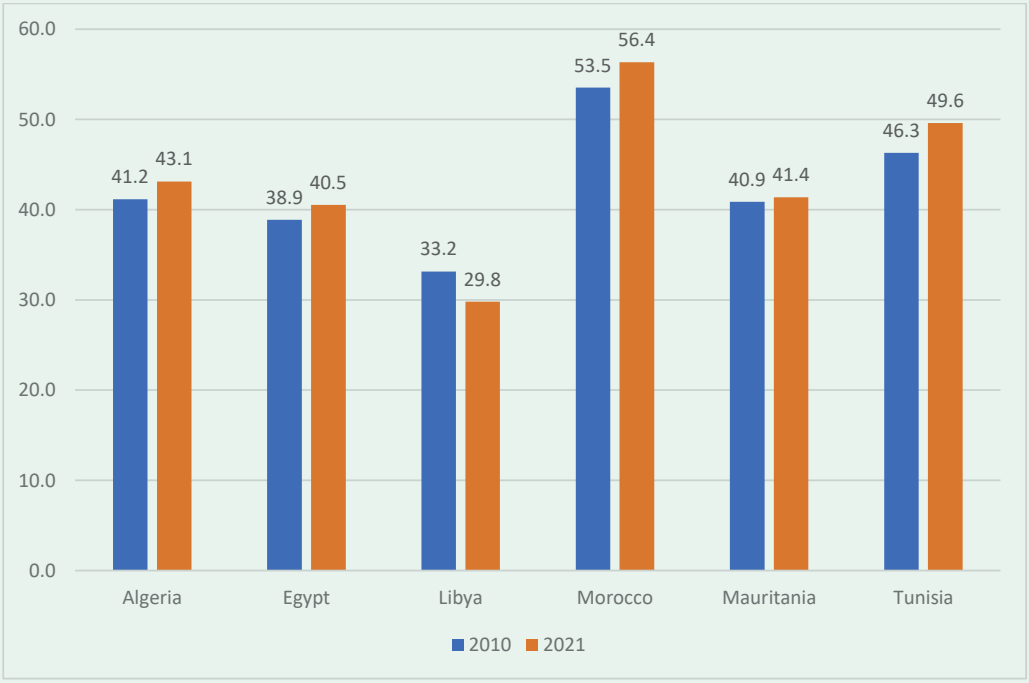
Existing hydrocarbon infrastructure is an enabler of hydrogen economy. There are strong synergies between natural gas and hydrogen, and some countries with good potential in both resources such as Algeria, Egypt, Libya, and Mauritania, could take advantage of these synergies, to enable an equitable energy development process. Hydrogen is almost entirely supplied from natural gas and coal today. Hydrogen is already all around the world at industrial scale, but its production is responsible for annual CO2 emissions equivalent to those of Indonesia and the United Kingdom combined. Harnessing this existing scale on the way to a clean energy future requires both the capture of CO2 from hydrogen production from fossil fuels and greater supplies of hydrogen from clean electricity (green hydrogen). According to the International Energy Agency (IEA, 2022)[6], the following measures will help scale-up hydrogen use: (1) Make the most of existing industrial ports to turn them into hubs for lower-cost, lower-carbon hydrogen; (2) Support transport fleets, freight and corridors to make fuel-cell vehicles more competitive; (3) Establish the first shipping routes to kick-start the international hydrogen trade; (4) Use existing gas infrastructure to spur new clean hydrogen supplies. Building on existing infrastructure, such as millions of kilometers of natural gas pipelines is essential. Repurposing natural gas pipelines for the transmission of hydrogen can cut investment costs by 50-80 percent, in comparison to the development of new pipelines. There are projects under development to repurpose thousands of kilometers of natural gas pipes to 100 percent hydrogen.

In response to the global energy shocks caused by Russia's invasion of Ukraine, the European Union (EU) has searched for an alternative supply of natural gas, shifting reliance away from Russian pipeline supplies towards liquefied natural gas (LNG) imports from overseas partners. Consequently, the European Commission[7] has signed a Memorandum of Understanding (MoU) with some of the North African countries such as Morocco to foster a green partnership mainly on green hydrogen. The initiative has been given a continental boost by establishing the Africa Green Hydrogen Alliance (AGHA) with the membership of Kenya, South Africa, Namibia, Egypt, Morocco, and Mauritania. The EU intends to intensify collaboration to supercharge the development of green hydrogen projects on the African continent. Electricity constitutes a significant proportion of the production of green hydrogen. Morocco, with its

[5] Green Hydrogen: The New Scramble for North Africa | Climate Crisis | Al Jazeera.
[6] https://www.iea.org/reports/global-hydrogen-review-2022/executive-summary
[7] https://www.ebcam.eu/events/members-events/2361-north-africa-outlook-2022

solar, and especially wind, resources, is perfectly positioned to benefit from green hydrogen and to be a regional leader in a green hydrogen economy, ranking alongside the United States, Saudi Arabia, Australia, and Chile as the five countries most likely to produce cost-competitively. In May 2022, Mauritania's Ministry of Petroleum, Energy, and Mines signed three key projects contributing to Mauritania's leadership in the green hydrogen scene, two for green hydrogen and one focused on green steel, with plans to increase green hydrogen and ammonia production from 2030 onwards[8].

Figure 2.1 : Green Growth Index in 2010 and 2021 in North Africa



Source: Global Green Growth Institute database

These include: (a) Project Aman[9]: The Government of Mauritania and renewable energy developer CWP have signed an MoU for the development of a USD 40 billion project on the construction of the green hydrogen production facility; (b) Project Nour[10]: Following the successful completion of a pre-feasibility study, Africa-focused transitional energy group, Chariot, signed a landmark deal for green hydrogen with the Mauritanian Government in September 2021; and (c) Green Steel with ArcelorMittal[11]: In May 2022, Mauritania's State-backed SNIM (Société Nationale Industrielle et Minière de Mauritanie) signed an MoU with ArcelorMittal establishing a green steel unit.

Private sector financing can play a key role in supporting green growth in North Africa, by providing the necessary capital to invest in

[8] Mauritania | Green Hydrogen Organization (gh2.org)
[9] The project is situated in an 8 500 km2 site in the country's northern desert and coastal regions of Dakhlet Nouadhibou and Inchiri. The hybrid generators are made with wind and solar power with a capacity of 30 GW (18 GW wind and 12 GW solar), which will generate 110 TWh of electricity per annum and is expected to produce 1.7 million tons of green hydrogen and 10 million tons of green ammonia. This output is vast compared to the neighboring country Morocco, almost three times higher than Morocco's annual energy consumption. This project is expected to increase Mauritania's GDP by 50-60 percent by 2035.
[10] The expected capacity for the project is 10 GW. This project could become one of the largest green hydrogen projects globally by 2030. It is spread over an onshore and offshore area of about 14 400 square kilometers producing power from solar and wind resources for electrolysis to produce green hydrogen.
[11] The project will involve the production of 2.5 million tons of green steel per year. ArcelorMittal will carry out a pre-feasibility study over the next four to six months.

clean energy infrastructure, energy efficiency improvements, sustainable agriculture, and land restoration projects. Private sector financing can also bring expertise, technology, and management skills to the effective and efficient implementation of such development projects. Governments, international organizations, and other stakeholders must work together to create the enabling conditions. Policies and regulations can be designed to attract investment into green technology, infrastructure, and practices. In addition, there is a need to promote and encourage public-private partnerships (PPPs) investment in green growth.

2.1.3 Progress and challenges towards green growth by the private sector in North Africa

As regards the Green Growth Index[12], many North African countries have low scores and have not made significant progress between 2010 and 2021 (Figure 2.1). Libya's Green Growth Index decreased from 33.2 out of 100 in 2010 to a low 29.8 in 2021 because of the conflict. North Africa continues to lag behind other regions in achieving targets for social inclusion, which include targets in access to basic services, gender balance, social equity, and social protection. Performance in natural capital protection is relatively better for many countries across regions, including North Africa, with scores ranging from moderate to high. This dimension covers indicators of environmental quality, GHG emissions reduction, biodiversity and ecosystem protection, and cultural and social value. Only very few countries perform well in efficient and sustainable resource use in the African region, namely the Congo Republic, Gabon, and Chad, but no North African countries. Among the four green growth dimensions, performance in green economic opportunities shows the poorest scores across countries, with only three countries, namely Denmark, the Czech Republic, and Germany, achieving scores above 60.

While North Africa has made strides towards attaining green growth, there remains a considerable gap to cover in fully unleashing the potential of sustainable development in the region. The countries have taken steps towards increasing their renewable energy capacity.
Available data shows that Morocco has increased its renewable energy capacity from less than 5 percent in 2009 to 34 percent in 2019, while Algeria has also increased its renewable energy capacity from less than 1 percent in 2011 to 3 percent in 2019. Egypt has the highest installed capacity and generation in North Africa in 2015 and 2019, while the least is in Mauritania. Renewable energies represent a significant share of green growth investments: 62 percent for Morocco, 39 percent for Tunisia, 36 percent for Algeria, and 15 percent for Egypt. Another notable progress has been made in private sector investment in renewable energy projects in the region, particularly in Morocco and Egypt. For example, Morocco has been successful in attracting private sector investment due to its clear renewable energy targets, supportive policy framework, and stable investment climate. Egypt is working on increasing the supply of electricity generated from renewable sources to 42 percent by 2035, with wind providing 14 percent, hydropower about 2 percent, photovoltaic (PV) roughly 21 percent, and concentrating solar power (CSP) 5.5 percent. The private sector is expected to deliver most of this capacity[13]. Finally, North African countries have taken steps towards regional cooperation in renewable energy, including the development of the Desertec initiative, which aims to connect North Africa's renewable energy resources with European energy markets.

Environmental, Social, and Governance (ESG) considerations are playing an increasingly important role in driving climate action and green growth in North Africa. Investors and financial institutions are increasingly factoring ESG

[12] The Green Growth Index measures performance in achieving sustainability targets including Sustainable Development Goals, Paris Climate Agreement, and Aichi Biodiversity Targets for four green growth dimensions – efficient and sustainable resource use, natural capital protection, green economic opportunities, and social inclusion. The scores for the Green Growth Index and its dimensions range from 1 to 100, with 1 having the lowest or very low performance and 100 having the highest or very high performance (GGI, 2019).
[13] https://www.trade.gov/country-commercial-guides/egypt-electricity-and-renewable-energy

considerations into their investment decisions, which has led to greater investment in renewable energy and other green industries. Private sector actors have also developed innovative financing mechanisms, such as green bonds and green loans, to support climate action and green growth objectives. For example, in 2020, the International Finance Corporation (IFC) invested USD 100 million in a green bond issued by Banque Centrale Populaire, a Moroccan bank, to support green projects in the country. The bond was certified by the Climate Bonds Initiative, which verifies that the bond meets certain environmental and climate standards. In North Africa, governments and institutions recognize the importance of sustainability and social responsibility in their decision-making. Civil society organizations, such as NGOs and community groups, have also played a critical role in North Africa by raising awareness about climate change and advocating for policy change, social and environmental justice, and accountability. The Moroccan Association for Alternative Energies and Sustainable Development, for instance, has advocated for the adoption of renewable energy in the country.

However, there are also challenges to achieving green growth in North Africa, in particular: (i) limited institutional capacity in some North African countries to implement policies and regulatory frameworks that support green growth; (ii) financial barriers – the high upfront costs of renewable energy projects and the limited availability of financing have been a challenge in some North African countries; (iii) political instability and security concerns in Libya, have hindered the development of renewable energy reforms and projects; and (iv) infrastructure constraints, especially transmission infrastructure, has been a challenge in some North African countries.

2.1.4 Fostering the transition to low-carbon and climate-resilient economies to promote sustainable development

North Africa needs to take decisive climate action, including investing in renewable energy, improving energy efficiency, reducing emissions from the transportation sector, and undertaking adaptation measures[14]. Climate action is a critical enabler of green growth, promoting sustainable economic development while reducing greenhouse gas emissions and addressing the urgent challenges of climate change. By taking bold action on climate change, North Africa can build a more sustainable and resilient future while contributing to global efforts to address the climate crisis. This can be achieved through a variety of measures that align with the principles of green growth, including short-term and long-term sector priorities.

Short-term priorities:

- **Investment in renewable energy:** North Africa has the potential to generate up to over 1 000 GW of renewable energy by 2030, with solar and wind power being the most promising sources. This could meet more than three times the region's electricity demand (IEA, 2019). For promoting renewable energy, North African countries could increase investment in renewable energy infrastructure. This could include incentivizing private sector investment in renewable energy projects, as well as expanding government-funded renewable energy initiatives. They could also establish regulatory frameworks that facilitate the adoption of renewable energy technologies. This could include streamlining the process for obtaining permits and licenses for renewable energy projects, as well as

[14] Climate adaptation projects entail activities that can withstand and cope with the perilous effects of climate change from floods, drought, heat waves, and desert encroachment. Adaptation activities include sustainable and climate-smart agricultural practices, sustainable water, and waste management and recycling, green housing, resilient infrastructure and technologies, efficient irrigation through water conservation (e.g., through drip or sprinkler irrigation), ecosystem governance and planning, and early warning systems for extreme weather events among others. See Williams et al., 2021.

providing tax incentives and other financial support to encourage adoption of renewable energies. Additionally, governments could prioritize the development of energy storage technologies, such as batteries and pumped hydro storage, to help address the intermittent nature of renewable energy sources like solar and wind.

- **Agriculture and Water Management:** One short-term policy priority is to improve water-use efficiency in agriculture. This could encompass implementing irrigation systems that are more efficient, as well as promoting the use of drought-resistant crops and other water-saving technologies, including promoting the use of treated wastewater for agricultural irrigation (at high quality for health reasons). Enhanced water harvesting techniques and use efficiency are particularly important for the water-stress North Africa region. Another priority could be to increase investment in water infrastructure, such as dams and reservoirs, to help store and manage water resources more effectively. Finally, improving access to information and technology for farmers, such as weather forecasting and precision agriculture tools, could help them make more informed decisions about water management and improve their agricultural productivity while using less water.

- **Waste Management:** North African countries could implement waste reduction and recycling programs for reusable products and materials such as paper, plastic, and metals. They could also improve waste collection and disposal infrastructure by investing in modern waste collection trucks and equipment, as well as building new waste treatment facilities such as composting and recycling plants. Additionally, governments could prioritize public education campaigns to raise awareness about the importance of waste prevention, proper waste disposal and recycling through outreach programs in schools and communities. Finally, implementing regulations and penalties for illegal dumping and littering could help reduce the amount of waste that ends up in landfills and other areas.

Other priorities that require immediate actions but longer-term implementation processes:

- **Transitioning to a low-carbon economy:** North African countries should develop and implement a comprehensive renewable energy strategy in line with national commitments identified in the NDCs. For some North African countries, it also entails designing long-term effective transition strategies from fossil fuels, and knowing how to address the intrinsic macroeconomic risks given the huge quantity of oil and gas and the potential loss of revenues. Low-carbon transition strategy will need to identify mitigating measures in the principles of a fair and equitable energy transition strategy. Overall, the long-term policy priorities for transitioning to a low-carbon economy in North African countries should focus on promoting the use of renewable energy sources, improving energy efficiency, developing low-carbon technologies, and creating effective carbon markets with efficient carbon pricing mechanisms to incentivize emissions reduction.

- **Energy efficiency:** According to the IEA (2019), energy efficiency measures could reduce energy consumption in North Africa by 22 percent by 2040. Improving energy efficiency in buildings, transportation, and industry can also reduce greenhouse gas emissions, create jobs, and stimulate innovation in energy-efficient technologies, while saving money on energy bills. Improving energy efficiency in buildings alone could lead to a reduction in global CO2 emissions of 6.0 gigatons (Gt) per year by 2050, according to

the International Energy Agency (IEA, 2019). This represents a significant contribution towards meeting the Paris Agreement goal of limiting global warming to below 2°C above pre-industrial levels. For example, a study by the UNDP (2015) estimated that energy efficiency measures in the Moroccan building sector could lead to annual energy savings of up to 42 percent, creating new jobs and reducing CO2 emissions. The UNDP (2019) also notes that North African countries have high energy intensity, meaning that they use a lot of energy to produce a unit of GDP. Finally, building insulation and efficient lighting could help reduce overall energy consumption and support the integration of renewable energy into the grid.

- **Promoting sustainable agriculture practices and forestry:** Promoting sustainable land use practices[15], such as conservation farming and agroforestry, can reduce deforestation, improve soil health, water conservation, and biodiversity, as well as increase carbon sequestration. By promoting sustainable agriculture practices such as drip irrigation, crop diversification, and soil conservation, North African countries can increase agricultural productivity and resilience to climate change. Sustainable agriculture can also improve food security and support local livelihoods given a significant potential, particularly in areas with high water stress. According to the Food and Agriculture Organization (FAO, 2021), agroforestry can increase crop yields by up to 128 percent, reduce water use by up to 50 percent, and help to reduce greenhouse gas emissions by sequestering carbon in soil and vegetation. Governments could provide financial support for farmers to invest in sustainable farming practices, and improve access to irrigation systems and water management infrastructure. Additionally, implementing regulations and penalties for unsustainable agricultural practices, such as overuse of pesticides and fertilizers, could help incentivize farmers to adopt more sustainable practices. Governments could also establish certification programs for sustainable agriculture practices to promote transparency and consumer awareness. Finally, governments could prioritize research and development of sustainable food systems, including local food production and distribution networks, to promote sustainable and equitable food access.

- **Developing green transportation:** North Africa has significant potential for sustainable transport, including public transport systems, electric vehicles, and bike-sharing schemes that could save a substantial amount of CO2 emissions annually by 2030 (EBRD, 2019). According to the World Bank (2020), the potential for public transport systems in the region is estimated at 21,000 km of bus rapid transit and 1,400 km of light rail transit. A study by the International Energy Agency (IEA, 2019) estimated that promoting electric cars in North Africa could lead to a reduction in CO2 emissions of up to 34 million tons by 2030. Egypt plans to upgrade its transport services by building electric light rail transit (LRT) along two routes (Adly Mansour–New Administrative Capital and Port Saeed West–Abu Qir) to provide efficient, safe, and affordable transportation for passengers and freight across the country while reducing carbon emissions, a project expected to be completed by 2025 with a cost of 6 billion USD[16]. Governments could prioritize the development of policies and regulations that incentivize the adoption of electric vehicles,

[15] Land use practices, including conservation agriculture and agroforestry, could sequester up to 9.3 Gt of CO2 per year by 2050, equivalent to removing 2 billion cars from the road (WB, 2015).
[16] UNECA, 2022 https://www.uneca.org/sites/default/files/ACPC/2022/RegionalRTC/Africa%20Climate%20Projects%20Review_Draft%20One%20Pagers%20%28final%2019%29_vShared.pdf

including tax breaks, rebates, and subsidies for electric vehicle purchases, as well as investing in charging infrastructure for electric vehicles. Another priority could be to invest in public transportation infrastructure, including bus rapid transit systems, light rail, and other forms of mass transit powered by renewable energy sources. Governments could also promote active transportation modes, such as walking and cycling, by investing in infrastructure such as bike lanes and pedestrian walkways. Governments should prioritize the development of green logistics and freight transport systems by establishing regulations and incentives for companies to adopt low-carbon transportation modes and investing in logistics infrastructure that supports sustainable freight transport. Additionally, governments could prioritize the use of smart traffic management and transportation demand management to reduce congestion and promote more efficient transportation modes.

- **Circular economy:** By promoting a circular economy, North African countries can reduce waste, create jobs, and promote sustainable consumption and production. According to the UN Environment Program (UNEP, 2019), promoting the circular economy in North Africa could create up to 3 million new jobs and reduce greenhouse gas emissions by up to 40 percent by 2050. According to the World Bank (2019), the implementation of a circular economy in Tunisia could create up to 100,000 new jobs and generate up to 0.8 percent of GDP growth. There are several opportunities in food systems, packaging, the built environment, electronics, and fashion and textiles for increased circularity[17]. North African countries should encourage the adoption of circular economy principles throughout the economy, including in product design, waste management, and resource use. Governments could promote sustainable product design, such as extended producer responsibility programs and eco-design standards, to encourage manufacturers to design products with the goal of reducing waste and minimizing resource use throughout the product's lifecycle. Governments could also promote the development of circular supply chains, including circular business models, such as product-as-a-service models and sharing economy platforms, which encourage the sharing and reuse of products. To mitigate the risks of stranded oil and gas infrastructure and related economic losses and lay-offs, oil and gas pipelines could be repurposed for green hydrogen utilization, thereby accelerating the technology deployment. Additionally, governments could prioritize public education and awareness campaigns to encourage citizens and businesses to adopt circular practices.

- **Promoting sustainable tourism:** North Africa is home to several popular tourist destinations, and there is significant potential for the development of sustainable tourism practices. For example, sustainable tourism in Morocco could generate up to USD 8.7 billion in annual revenues by 2030 and create up to 370,000 new jobs (UNEP, 2019). However, realizing this potential requires concerted efforts from governments, businesses, and civil society to promote green technologies and practices and create an enabling environment for green industries to thrive. Governments could promote sustainable infrastructure development, such as green building codes and sustainable tourism certification programs, to encourage the construction and operation of sustainable tourism facilities. Another priority could be to promote sustainable resource use, such as water and energy conservation, waste reduction, and sustainable transportation, throughout the tourism industry. Governments could also prioritize community engagement and local empowerment in tourism development,

[17]Association for the Advancement of Cost Engineering (AACE, 2021) https://web.aacei.org/

to ensure that local communities benefit from tourism development and that tourism supports local economies and cultures.

- **Climate adaptation:** Supporting climate adaptation measures in line with NDCs and national adaptation plans, including water management and disaster risk reduction, can help countries to build resilience to the impacts of climate change. In 2050, climate change will account for 22 percent of future water shortages in the region, while 78 percent of increased future water shortages can be attributed to socioeconomic factors (Magsar et al., 2023). The United Nations Environment Programme (2015) estimates that costs associated with climate change adaptation across Africa could hit USD 50 billion annually by 2050, even if the global temperature does not rise more than 2°C above pre-industrial levels. The World Bank (2015) estimated that investing in climate adaptation measures in Morocco could generate economic benefits of up to USD 2.5 billion per year by 2030. As part of the cost of climate change adaptation, Egypt is planning to encourage farmers to adopt new genotypes and technologies and build resilience to unusual weather events in the Delta[18]. Cognizant of this, governments must implement pricing policies and regulations that create appropriate market incentives for green processes and products. These include incentives for more efficient energy and water use. Environmental market failures will make private green demand less than socially desirable without such incentives.

- **A variety of factors serve as enablers for progress on climate action and green growth in North Africa, including policy and regulatory frameworks, financing mechanisms, technological innovations, and partnership.** There is a growing political will and commitment from governments in North Africa to transition towards a green economy and reduce their carbon footprint. There is also an increasing awareness and engagement of the public, private sector, and civil society. The availability of financing has also increased in the region, including through multilateral development banks, climate funds, and green bonds. The roles of governments and DFIs are instrumental in providing long-term financing to crowd in private capital, enabling project bankability and catalyzing private funding.

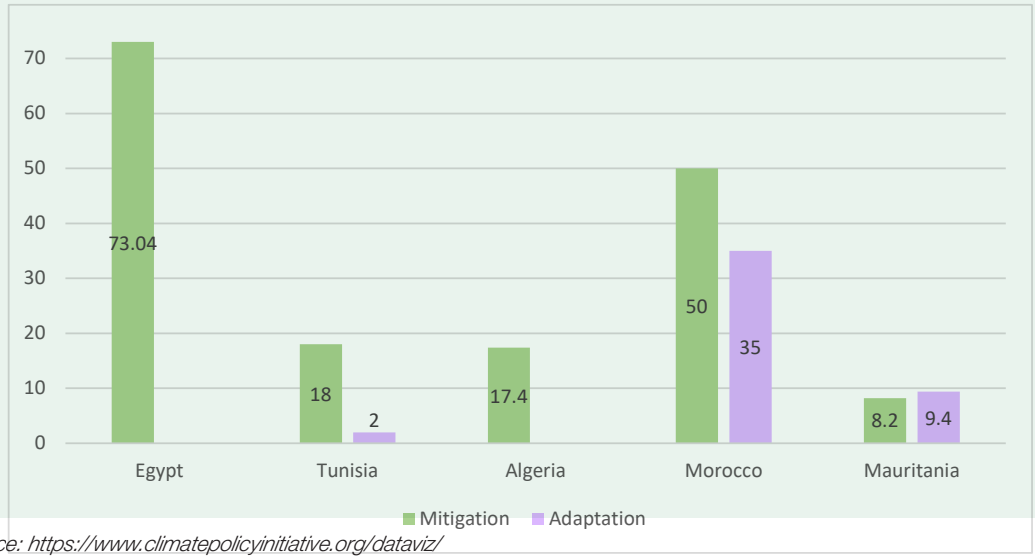
- **The private sector is crucial in investing in green growth initiatives.** The private sector has the potential to contribute more than 80 percent of the climate finance needed for the implementation of the Paris Agreement targets (IFC, 2016). It can support the development of new technologies and business models, increase efficiency and infrastructure, drive impact, and enable knowledge sharing and capacity building. Private sector financing has been critical to the success of large-scale renewable energy projects in North Africa, such as the 1.3 GW Noor Ouarzazate solar complex in Morocco, which was financed through a public-private partnership and attracted USD 3.9 billion in investment (IEA, 2019). The green growth model, through private investment, can address many of the climate-induced vulnerabilities of North African countries by prioritizing job-creating investments in resilient infrastructure and adaptation measures. It would particularly benefit young people and women who are often vulnerable to shocks of climate change and variability. Women tend to be overly burdened with unpaid care work in the region compared to men. Around 23 percent of employed women in the region are in agriculture, depend on farming and natural resources for livelihoods, and are thus

[18] Crop adaptation in the Nile Valley and Delta: The project will target 1.5 million (m) ha of land and 30m people in rural areas, aiming to ensure 20 percent of Nile Delta and Valley communities are resilient and aware of adaptation options. The program will also aim to increase the annual production of wheat, barley, maize, and sorghum to 12.2m, 0.45m, 10.6m, and 1.5m tons, respectively, with a total value of more than USD 54 billion by 2030.

impacted by droughts, floods, and declining harvests resulting from climate change[19]. In general, the private sector financing in green growth will strengthen economic expansion and employment creation more than in the current environmentally unsustainable growth. Furthermore, the use of environmental, social, and governance (ESG) criteria by private sector investors can also play a role in enabling green growth in North Africa[20]. In general, (i) technology and innovation, (ii) skills and human capital, (iii) natural capital endowments, (iv) markets, (v) institutions, and (vi) policies are the most fundamental drivers of green growth.

There is a need to unlock the vast pools of private sector capital to address the transition to a green economy in North Africa. First, private sector financing can mobilize large amounts of capital necessary to finance the scale of investment needed for green growth initiatives. Second, private-sector funding can support the development and commercialization of low-carbon technologies, such as renewable energy and energy storage systems and business models critical to achieving green growth. Third, private-sector financing can help to share the risks associated with green growth investments. This is because blended finance (public and private funding), as well as government policies and regulations/laws, can help share the risks or reduce the risks to private investments. For example, the Green Climate Fund has mobilized over USD 10 billion in public and private sector financing to support climate mitigation and adaptation projects in developing countries. Fourth, private sector financing can promote efficiency and cost-effectiveness in green growth initiatives, as private investors often focus on achieving financial returns.

Figure 2.2 : Climate finance needs (USD billion)



Source: https://www.climatepolicyinitiative.org/dataviz/

Note: For Algeria, climate finance needs for adaptation needs are not available. For Egypt, the amount is both for adaptation and mitigation.

[19] https://www.worldbank.org/en/events/2023/02/27/climate-gender-and-food-security-resilience-good-practices-from-the-middle-east-and-north-africa

[20] ESG investing refers to the consideration of environmental, social, and governance factors alongside financial factors when making investment decisions. In North Africa, ESG investing has been identified as a key enabler of green growth, as it can incentivize private sector investments in sustainable and low-carbon technologies and businesses (I4CE, 2021).

North African countries must establish a conducive environment that minimizes investment risks and amplifies financial benefits for the private sector to attract funding for green growth initiatives. This includes establishing supportive policy and regulatory frameworks, improving access to financing, governance, and anti-corruption policies, and providing technical assistance to help businesses navigate the regulatory landscape. Development banks and IFIs can catalyze financing and de-risk investments. Public sector actors can also provide co-financing and risk-sharing mechanisms to reduce investment risks and leverage private sector investment. Overall, the private sector can fully play its role by mobilizing capital, fostering innovation, sharing risks, increasing efficiency, and driving positive impact. On the other hand, to redirect fiscal support from brown to green growth, processes, and services, there is a need for legal and regulatory readiness among North African countries. Developing legal frameworks, such as subsidy regimes, is often required. Incentive structures should also be aligned to provide the correct signals and support key green growth technologies and industries. Furthermore, political commitment is critical to establishing the right policies and institutions for green growth while providing the appropriate institutional arrangements and human capacity, which are crucial for transforming the current economic structure to deliver green growth.

Table 2.2 : GHG emissions, NDC commitments, target sectors and financing needs in North Africa (Mitigation Targets)

Mitigation

	GHG Emission (million tons of CO2 equivalent)	GHG Emission per capita (tCO2e/ person)	GHG Emission Mitigation Target (%)	GHG Emission Conditional Mitigation Target (%)	GHG Emission Unconditional Mitigation Target (%)	Mitigation Funding Requirement:	Targeted Sectors
Algeria	282.23	6.56	7-22%	22%	7%	USD 17.4 billion	Energy, AFOLU, Industry, Waste
Morocco	91.15	2.5	59%	42%	18.3%	USD 50 billion	Energy, AFOLU, Transport, Waste Management
Tunisia	37.81	3.23	41%	45%	13%	USD 18 billion	Energy, AFOLU, Industrial Processes and Product Use (IPPU), Renewable Energy, Waste Management
Libya	126.69	18.69	NA	NA	NA	NA	NA
Egypt	351.96	3.51	Electricity (33%) Transport (7%) Oil and gas (65%)	NA	NA	USD 73.04 (mitigation and adaptation)	Agriculture, Transport, Energy & Energy efficiency
Mauritania	13.21	2.92	22.3%	92%	8%	USD 8.2 billion	Energy, AFOLU, Transport, IPPU, Renewable Energy, Food/Water

"The public sector contributed to most of the climate finance in this region, accounting for 85 percent of the total amount, while private sector finance makes up 15 percent."

Table 2.3 : Vulnerable sectors and financing needs in North Africa (Adaptation Targets)

Adaptation Targets

	Vulnerable Sectors	Climate Risk	Adaptation Funding Requirement:	Implementation
Algeria	Agriculture, Water, Ecosystem	Flood, Drought	NA	Financial Support, Technology Development & Transfer, Capacity Building
Morocco	Agriculture, Water, Ecosystem, Health, Coastal Zone	Flood, Drought, Sea Level Rise, Extreme Weather, Temperature	USD 35 billion	Financial Support, Capacity Building, Technology Transfer
Tunisia	Agriculture, Water, Ecosystem, Health, Economic Loss	Flood, Drought, Temperature Increase, Sea Level Rise, Extreme Weather	USD 2 billion	Financial Support, Capacity Building, Technology Transfer
Libya	NA	NA	NA	NA
Egypt	Agriculture, Transport, energy & energy efficiency	Flood, Storm, Earth Quack, extreme temperature, accidents and other miscellaneous.	USD 73.04 billion (mitigation and adaptation)	
Mauritania	Agriculture, fisheries, mining and livestock	Flood, Epidemic, Drought, Storm	USD 9.4 billion	

Source: https://africandchub.org/ and https://www.climatewatchdata.org/countries/D

2.2 The private sector financing landscape in North Africa

In response to the climate change challenges, North African governments have begun to prioritize climate action and green growth as part of their development agenda. The private sector has an essential role to play in achieving these goals by investing in climate-friendly projects and innovations. However, financing remains a significant barrier to the private sector's participation in climate action and green growth in the region.

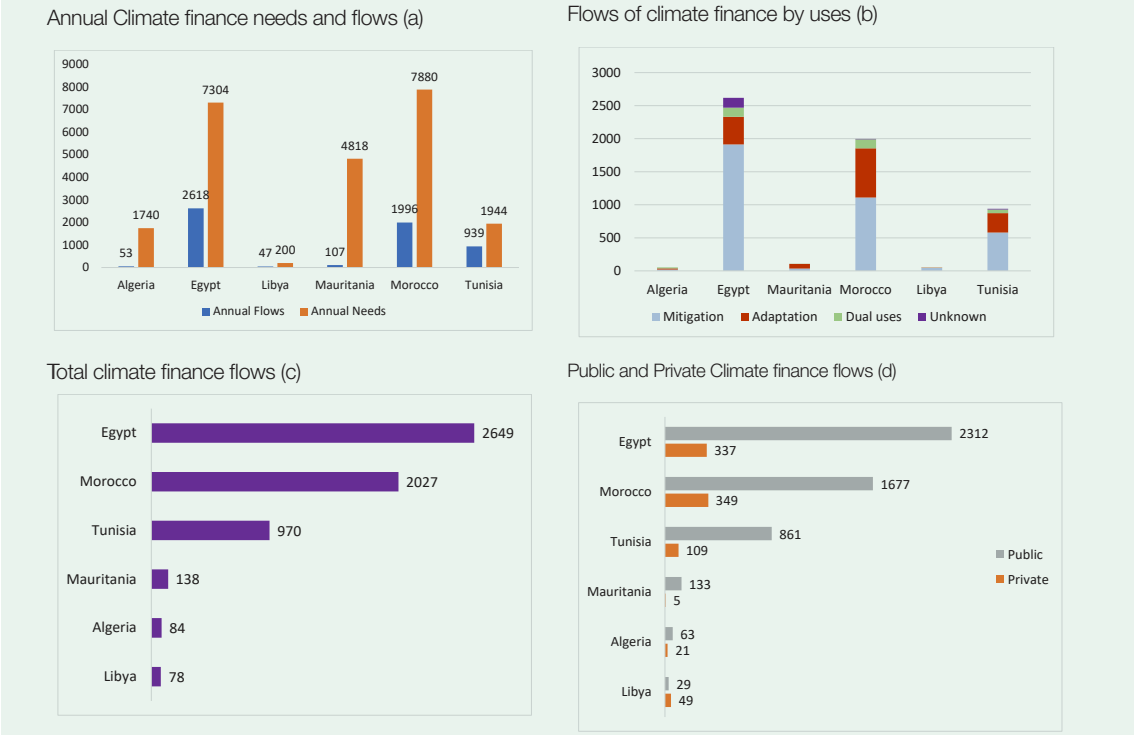
2.2.1 Climate finance and green growth needs in North Africa

The green growth needs in North Africa are substantial, given the region's significant economic and environmental challenges. According to the IRENA (2019), North Africa will need to invest USD 183 billion in renewable energy between 2015 and 2030 to achieve its renewable energy targets. The investment in sustainable agriculture in North Africa is estimated to require USD 33 billion per year (FAO, 2020). In addition, investments in other areas like waste management and urban development are estimated to require USD 5-7 billion per year (World Bank, 2019) and USD 30-40 billion per year (UN, 2021) Respectively. Green growth needs vary across North Africa depending on various factors such as the country's level of development, natural resources availability, and government policies.

The implementation of North Africa's climate action plan, as outlined in the countries' NDCs, is estimated to require an annual investment of approximately USD 25.7 billion up to 2030 (CPI, 2022). However, only 20 percent of the required amount has been financed. The governments'

inability to finance green projects could be due partly to the countries' high debt level and other development priorities. In fact, a significant portion of the required climate action finance was expected to come from sources other than the governments, particularly foreign governments, international development institutions, and the private sector.

Figure 2.3 : Climate finance needs and flows in North Africa (in USD million)



Source: https://www.climatepolicyinitiative.org/dataviz/

The most significant climate action financing opportunities are related to mitigation activities (Figure 2.2). Out of all the countries in the region, Libya has the lowest requirement for climate action, with a total of only USD 2 billion. In contrast, the climate finance needs[21] are most significant in Egypt and Morocco, with requirements of USD 73.04 billion and USD 50 billion respectively, and all planned actions are geared towards mitigation efforts. Libya, Mauritania, and Tunisia are the only three countries in the region with planned adaptation activities. Libya's climate finance needs are solely for adaptation measures, whereas Mauritania and Tunisia also have a relatively high demand for such measures, with 53 percent (USD 9.4 billion) and 66 percent (USD 35 billion) respectively. The energy, agriculture, forestry, and land use (AFOLU), transport, and waste and water management sectors are the primary areas of focus for climate action in the region.

2.2.2 Finance flows for climate action and green growth

The total climate action finance flows in North Africa amount to USD 5.9 billion, which is only 23 percent of the estimated annual requirement of USD 25.7 billion needed to implement the countries' NDCs and attain their climate goals by 2030. The public sector contributed to most of the climate finance

[21] According to Climate Policy Initiative (2022) "climate finance needs" are seen from two perspectives. Some countries refer to the cost of adaptation and mitigation activities as their climate finance needs, while others refer to the amount of finance that cannot be covered by national governments. Regardless of this, climate finance needs are defined as the difference between the total estimated cost stated in NDCs and the amount of finance that countries can cover with their own national government resources. These needs must be covered by other private, national, and international (public and private) resources.

Table 2.4 : Climate finance flows in North Africa by sector (% of total)

	Algeria	Egypt	Libya	Mauritania	Morocco	Tunisia
Agriculture	40.2	2.8	0.9	35.2	7.8	4.9
Infrastructure	0.0	10.4	0.7	5.3	1.1	8.4
Energy	36.1	29.2	93.5	10.6	39.5	44.2
Industry	0	0	0	0	0	0
ICT	0	0	0	0	1.1	0.2
Transport	0	35.1	0	0	8.2	0.1
Water, Wastewater & Waste	0.8	9.5	0	10.5	8.6	23.5
Others & Cross sectoral	22.9	13.0	4.9	38.4	33.7	18.7

Source: https://www.climatepolicyinitiative.org/dataviz/ and AfDB (2020)

"the region will require around USD 280 billion between 2020 and 2030 to support its transition to a low-carbon, climate-resilient economy"

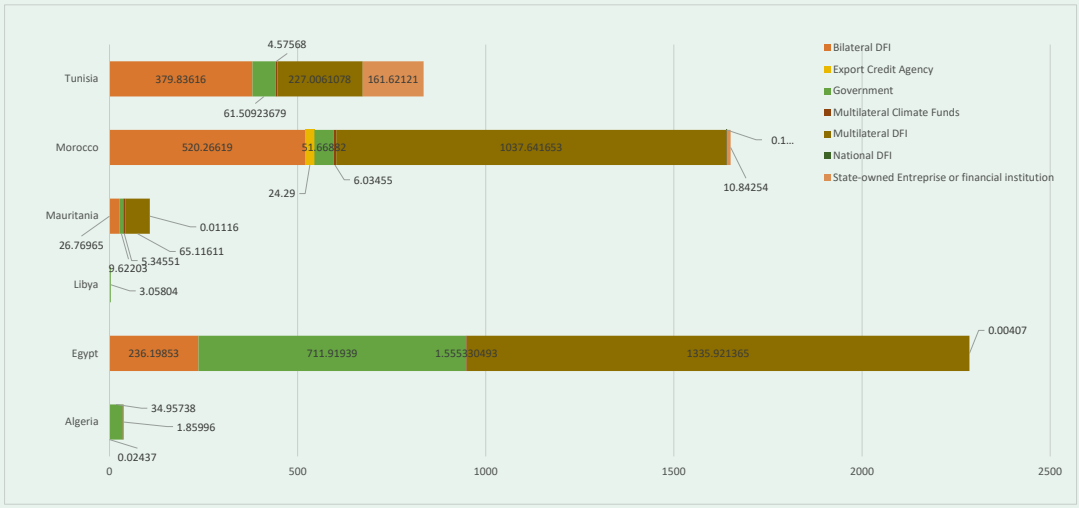
in this region, accounting for 85 percent of the total amount, while private sector finance makes up 15 percent. Among the countries in the region, only Libya shows a higher contribution from the private sector, which accounts for 63 percent of the country's total climate finance, surpassing the public sector's share.

Every country in the region has faced a significant shortfall in funding compared to their needs, and the investment gaps differ from one country to another. There is, however, considerable disparity among the countries in the region, with Tunisia receiving about 48.3 percent of its annually needed funding, while Mauritania received just 2.2 percent of its annually needed funding to implement its NDCs and climate action goals. Despite having relatively low climate finance needs, Algeria faces one of the biggest financing gaps in the region with Mauritania. Compared to other countries in the region, Egypt and Tunisia receive a relatively higher climate finance flow, with 35.8 percent and 48.3 percent of their total climate action finance needs being met, respectively. Apart from the disparity in the financing gap among countries in the region, there is also a significant gap between the absolute climate finance needs of these countries and the actual finance flows received, ranging from 2 to 45 times higher.

Except for Libya, the public sector and bilateral donors were the main sources of climate funds in North Africa, accounting for about 80 percent of the total flows. Contributions from North African countries account for 18 percent, while the remaining 2 percent came from the private sector. The main priority sectors for climate finance in the region are renewable energy, transport, agriculture, and water management. Country-specific financing flows vary (Table 2.4). For example, Morocco and Tunisia have prioritized investments in renewable energy and energy efficiency, while Algeria and Mauritania have focused on sustainable agriculture. On the other hand, Libya has made about 94 percent of its investment in energy alone, while Egypt has targeted investments in transport, energy, and infrastructure. The governments of North Africa pledge to finance only 13 percent of the total budgets needed to implement NDCs. Based on the NDCs generally, continental mitigation measures require the largest share of financial support, accounting for 66 percent (USD 1 607 billion). Adaptation needs are estimated at USD 579 billion, only 24 percent of the total. The remaining 10 percent relates to dual-benefit actions that have an impact on both mitigation and adaptation.

The financing needs for climate action and green growth in North Africa are substantial and diverse, covering a range of sectors and activities. Mitigation needs are predominantly split across four sectors: transport, energy, industry, and AFOLU, while adaptation needs are mainly reported for agriculture, water, infrastructure and building, disaster prevention and preparedness, and health (CPI, 2022). According to the African Development Bank (2020), the region will require around USD 280 billion between 2020 and 2030 to support its transition to a low-carbon, climate-resilient economy. The North African countries with the highest committed and planned power investments (including both generation and transmission) are Egypt (USD 36 billion), Algeria (USD 23 billion), and Morocco (USD 12 billion). In Tunisia and Libya, the corresponding figures are USD 3 billion and USD 0.3 billion respectively (APICORP, 2021). However, public funding alone will not be sufficient to meet these financing needs. It is therefore important to mobilize private sector financing as well, which can provide additional capital and expertise to support the implementation of green growth projects in the region. As regards country patterns, Morocco, Tunisia, and Egypt are the largest recipients of climate finance in the region, due in part to their more advanced policy frameworks and investments in renewable energy.

Figure 2.4 : Sources of climate finance in North Africa (in USD million)



Source: https://www.climatepolicyinitiative.org/dataviz/ and AfDB Statistics

The most significant sources of funding for climate action in North Africa are bilateral and multilateral Development Finance Institutions (DFIs), accounting for about 78 percent (USD 3.8 billion) of the total public sector financing in the region (Figure 2.4). Bilateral DFIs contributed 24 percent of the public sector financing, while 54 percent of the contribution came from the multilateral DFIs. National budgets accounted for approximately 18 percent of total climate finance flowing to North Africa, while State-owned enterprises accounted for 4 percent. The highest shares of the Bilateral DFIs and Multilateral DFIs went to the energy sector, 25 percent and 26 percent (a total of USD 980 million) respectively. Sixty percent of the financing from Multilateral DFIs went to mitigation, 32 percent to adaptation, and the remaining 2 percent went to projects with multiple objectives.

2.2.3 Current sources of private-sector finance for climate investments

Private sector finance for climate action in North Africa reached USD 11.6 billion in 2018, representing 41 percent of total climate finance in the region. This figure includes private sector investments in renewable energy, energy efficiency, sustainable transport, and other climate-smart sectors. The region has some of the world's largest solar and wind energy projects, attracting significant private sector investments. According to the climate policy initiative data, the private sector financing in North Africa is concentrated in three countries – Egypt, Morocco, and Tunisia. On the other hand, Mauritania receives no funding from the private sector. About USD 842 million was recorded as private climate investment in North Africa, of which 41 percent (USD 345 million) went to Morocco, 39 percent (USD 332 million) to Egypt, and 12 percent (USD 104 million) to Tunisia. According to the IRENA (2019), private sector investment in renewable energy in North Africa increased from USD 1.2 billion in 2014 to USD 2.4 billion in 2018. Morocco and Egypt accounted for most of this investment, with Morocco attracting USD 2.5 billion in private investment in renewable energy between 2010 and 2018.

The most significant share of the private sector's investment was in the energy sector in Egypt. The transport sector in Egypt ranked second in benefitting most from the private sector investment. The private sector investment in the region was heavily concentrated in the energy sector (78 percent), followed by infrastructure (19 percent). While 80 percent of the private sector's contribution went to mitigation activities, the allocation of the remaining 20 percent is unknown. Thirty six percent of the private sector financing came from corporations, 30 percent from commercial and financial institutions, and 20 percent from unknown sources. Despite its importance to the region, the private sector's contribution to AFOLU is negligible, with just USD 7.6 million worth of investment. While the source of the private sector's contribution is unknown, about USD 6 million of the investment on AFOLU was in Morocco.

Morocco has been a leader in attracting private sector finance for green growth in the region. For instance, the Noor-Ouarzazate solar power complex, one of the world's largest solar power plants, was built with the help of private-sector financing[22]. Morocco has emerged as a leader in renewable energy investments, with private sector investment totaling USD 10.6 billion between 2012 and 2018, according to the IFC. The country's efforts to develop its renewable energy sector have been driven by supportive government policies, such as feed-in tariffs and the creation of renewable energy zones. These policies have attracted private sector investors, including major international companies such as Enel Green Power, EDF renewables, and Acwa Power. Other countries in the region have also been successful in attracting private sector finance. In 2018, private sector investments in renewable energy projects in Egypt reached USD 2.6 billion (AfDB, 2019).

They stood at USD 292 million in Tunisia, and USD 150 million in Algeria. Despite progress in recent years, private investment in North Africa remains relatively low compared to other regions. The COVID-19 pandemic has also had a significant impact on investment flows, with many investors adopting a cautious approach due to economic uncertainty.

The limited availability of financing, particularly for small and medium-sized enterprises (SMEs),

[22]Noor i concentrated solar power project in Morocco aimed to initiate the development of Concentrated Solar Power (CSP) technology by carrying out Phase I of the Ouarzazate Power Station (125 to 160 MW) with a budget of CTF USD 100 M, AfDB USD 240 M. The main achievements include 1,802,864 tons of CO2 being avoided in 2021 alone, over 2,484 GWh of clean energy produced and delivered through the national electric grid since 2016, and more than 2,000 green jobs created. In 2020, the Moroccan solar power plant Noor-Ouarzazate III, which has a capacity of 800 MW, secured USD 740 million in funding from a consortium of international lenders, including the World Bank, the African Development Bank, and the European Investment Bank.

Table 2.5 : Government supportive policies for private sector investment in green initiatives

Country	Policy incentive
Algeria	Under the National Renewable Energy and Energy Efficiency Program (PREREE) launched in 2021, the Government has implemented a range of incentives, including tax breaks, subsidized loans, and simplified administrative procedures. For example, the program offers a 19 percent tax credit on investments in renewable energy projects, as well as a 50 percent reduction in customs duties for imported equipment related to renewable energy. In addition to PREREE, the Government has also implemented policies aimed at promoting green initiatives and supporting private sector investment in this area. For example, in 2017, the Government adopted a new law on energy efficiency, which requires public and private sector entities to implement energy management systems and reduce their energy consumption by 5 percent per year.
Egypt	One of the most significant initiatives is the Feed-in-Tariff (FiT) program, launched in 2014 but recently replaced by auctioning mechanisms. Under the FiT program, the Government guaranteed a fixed price for the electricity produced by renewable energy projects over a period of 20 to 25 years, depending on the type of technology used. This provided a stable and predictable income stream for investors. The Government has also promoted green initiatives, such as tax incentives, customs exemptions for equipment used in renewable energy projects, and simplified administrative procedures for obtaining permits and licenses.
Morocco	One of the most significant policies is the Moroccan Solar Plan, launched in 2009. The Government has implemented a range of incentives to encourage private sector investment in solar power, including tax breaks, subsidies, and simplified administrative procedures. For example, the plan offers a 20-year power purchase agreement (PPA) at a fixed price.
Tunisia	One of the most significant policies is the National Renewable Energy Plan, launched in 2016. The Government has implemented a range of incentives to encourage private sector investment in renewable energy, including tax breaks, subsidies, and simplified administrative procedures. For example, the plan offers a 20-year power purchase agreement (PPA) at a fixed price.

Source: Each country's Energy Policy Handbook (Algeria Energy Policy Handbook, 2018; Egypt Energy Policy Handbook, 2019; Morocco Energy Policy Handbook, 2019 and Tunisia Energy Policy Handbook, 2019).

is critical to the region's green growth. Another challenge is the regulatory and policy environment, often not conducive to private sector investment in green growth. Governments in the region need to adopt more supportive policies that provide incentives for private sector investment in green initiatives, such as tax breaks, subsidies, and regulatory frameworks that encourage investment. Table 2.5 presents a summary of such incentives for four of the countries in the region. In Libya and Mauritania, no significant government policies or incentives are aimed at promoting private sector investment in green initiatives. Furthermore, there is a need for greater collaboration between governments, the private sector, and other stakeholders to identify and promote sustainable and innovative financing solutions. This could include partnerships between private sector entities

Table 2.6 : Primary modes of private sector financing

Country	Type of financing	Financers	Year	Amount
Morocco	PPP	Moroccan Agency for Solar Energy	2019	USD 750 million
Morocco	Private Equity	Platinum Power	2019	USD 100 million
Morocco	Green bonds	Moroccan government	2016	USD 3.3 billion
Morocco	International financial institutions	African Development Bank	2019	USD 210 million
Morocco	International financial institutions	World Bank	2019	USD 25 million
Morocco	Commercial banks	Attijariwafa Bank and BMCE Bank	2016	USD 118 million
Morocco	Multilateral and bilateral financial institutions	European Investment Bank (EIB)	2020	USD 121 million
Morocco	Multilateral and bilateral financial institutions	World Bank	2020	USD 500 million
Egypt	PPP	Egyptian government	2021	USD 250 million
Egypt	Green bonds	Egyptian government	2021	USD 1.8 billion
Tunisia	Green bonds	Tunisian government	2016	USD 550 million
Tunisia	International financial institutions	European Bank for Reconstruction and Development (EBRD)	2020	USD 16.5 million
Morocco	Corporate investment	Enel Green Power and Total	2019	USD 2 billion
North Africa	Grants	World Bank and the Global Environment Facility	2021	USD 820 million
North Africa	Impact Investment Funds	Maghreb Private Equity Fund II	2019	USD 136.4 million

Source: Based on data from different sources such as World Bank, AfDB Statistics, and national reports of North African countries.

and development finance institutions, as well as initiatives that promote green bonds, crowdfunding, and other alternative financing models.

Private sector finance for energy efficiency in buildings is also growing in North Africa. The estimated USD 24.7 trillion investment potential in green buildings between 2018 and 2030 in emerging market cities is due to the sharp increase in building construction expected over the next few decades and the opportunity to ensure these are built green (IFC, 2018). The LEED certification is an internationally recognized rating system commonly used across many African countries. Some landmark projects that have been LEED-certified include Knowledge City and Cairo Business Park in Egypt and Medina Tower in Libya[23]. Morocco is also home to Africa's first eco-city, Zenata, located northeast of the largest Moroccan city of Casablanca, and spans 1,830 hectaress. Other

[23] https://worldgbc.org/africa

high-value sustainable building projects in the region include the Sustainable City in Rabat (USD 2.5 billion), Mahdiyyah Renewable Energy City (USD 2.5 billion), and Rabat Bouregreg Tower (USD 375 million)[24]. In general, despite the initiatives in green building in some North African countries such as Egypt and Morocco, private sector finance for green building initiatives remains relatively low.

There are significant opportunities for private sector finance to support climate action and green growth in North Africa, particularly in areas that are currently overlooked, such as circular economy, green buildings, sustainable transport, and climate adaptation. While private sector finance has increased significantly in recent years, more needs to be done to scale up investment in climate-smart sectors and achieve the region's climate goals. Several initiatives are underway to mobilize private sector finance for climate action in North Africa. For example, the Green Climate Fund (GCF) has approved a USD 265 million project to support renewable energy development in Egypt and a USD 98 million project to promote sustainable agriculture in Morocco. These projects aim to attract private sector investment by providing a favorable policy and regulatory environment and reducing investment risks.

2.2.4 Emerging innovative sources of private sector finance for climate and green growth

There are several emerging innovative sources of private sector finance for climate and green growth in North Africa that have shown promising performance.

- Climate insurance is a financial product that provides protection against the risks associated with climate change, such as natural disasters and extreme weather events. For example, the African Risk Capacity (ARC) which provides climate insurance to farmers in Morocco and other African countries, has helped to protect livelihoods and promote resilience in the face of climate change. Climate insurance has shown promising performance in North Africa, with high levels of uptake and successful payouts to farmers in times of need.

- Impact investing is a type of investment that aims to generate positive social and environmental impacts alongside financial returns. In North Africa, the Acumen Fund, a global impact investment fund, has invested in several social enterprises in North Africa, including a solar energy company in Egypt and a sustainable agriculture project in Tunisia. The performance of impact investments in North Africa has been mixed, with some projects generating significant social and environmental benefits, while others have struggled to achieve financial sustainability (Acumen, 2020).

- Crowdfunding is an emerging source of finance for climate and green growth projects in North Africa. Platforms such as Lita.co and Fadfed are being used to support projects such as community solar projects and sustainable agriculture initiatives. The performance of crowdfunding in North Africa has been promising, with several successful projects funded and increasing interest from investors. For example, a crowdfunding campaign on Lita.co raised USD 175 500 to support the development of a solar irrigation project in Tunisia (World Bank, 2018). Crowdfunding in the Arab world has the potential to mobilize up to USD 2.5 billion annually. While specific figures for North Africa are not available, it is likely that crowdfunding is also being used to finance small-scale climate action and green growth projects in the region (World Bank, 2018).

- Climate funds are providing finance for climate projects in North Africa, such as renewable energy, energy efficiency, and climate adaptation. The Green Climate Fund has approved several projects in North Africa, including a USD 28.6 million project in Tunisia to support renewable energy and

[24] Construction projects in Morocco. CCE News. https://cceonlinenews.com/2018/05/21/mega- 59 construction-projects-in-morocco/

energy efficiency and a USD 41.5 million project in Morocco to support climate-resilient agriculture. According to the Green Climate Fund's website, as of March 2023, the fund has approved 25 projects in the region, with a total funding of over USD 1.1 billion. The Adaptation Fund has also approved a project in Egypt to develop a climate-resilient water management system and a USD 4.3 million project in Tunisia to address the impacts of climate change on vulnerable populations. The performance of climate funds in North Africa has been positive, with several successful projects completed and ongoing.

Overall, these emerging innovative sources of private sector finance for climate and green growth in North Africa can accelerate its transition to more sustainable and resilient future.

2.3 Barriers and Opportunities for Leveraging Private Sector Financing for Green Growth in North Africa

Despite the increasing attention and commitment to environmental sustainability, there is a significant financing gap for climate action and green growth in the private sector. This gap poses a significant challenge to achieving the necessary levels of investment required for climate action and green growth in North Africa.

2.3.1 The financial gap for climate action and green growth in North Africa

The region faces several challenges in attracting private sector investment. The AfDB (2020) found that "the investment gap for renewable energy in North Africa is estimated at USD 100 billion by 2030". Similarly, IFC (2019) notes that "despite strong demand for climate finance in North Africa, there is still a significant financing gap". IFC (2019) also indicates that while there is significant interest from international investors in the region, "investors face significant barriers to investing in North Africa, including currency risks, and high transaction costs".

The participation of the private sector in green investment is limited to very few countries and sectors. The estimated cost of climate change mitigation and adaptation in North Africa will be approximately USD 280 billion by 2030, with an annual financing gap of USD 10 billion (AfDB, 2018). The report notes that the region's financial markets are not well developed, which creates a gap in the availability of private sector financing for climate projects and limits the ability of businesses to access funding for renewable energy and energy efficiency projects.

The financing gap for climate action in North Africa is estimated at USD 30 billion per year by 2030, with the largest gaps in Egypt, Morocco, and Algeria (AfDB, 2018). Addressing this financing gap will require mobilizing significant domestic and international resources.

Financing for climate action and green growth in North Africa should focus on the energy sector, transport, and agriculture sectors. These sectors are major sources of greenhouse gas emissions in the region and are key areas for promoting sustainable development and reducing vulnerability to climate change impacts. However, the financing gap for climate action in these sectors is also significant, with limited private-sector investment and insufficient public-sector financing to support the development of low-carbon transport and agriculture systems. In terms of national patterns, the financing gaps for climate action and green growth in North Africa are generally higher in countries with larger economies and higher greenhouse gas emissions. For example, Egypt, Morocco, and Algeria have the largest financing gaps in the region due to their relatively large populations and economies and significant greenhouse gas emissions. Fossil fuels industries could significantly invest in mitigation actions through voluntary carbon markets and in

adaptation actions through companies' corporate social responsibility actions.

2.3.2 Factors that contribute to the private sector financing gap in North Africa

Despite the numerous opportunities for green growth and development in North Africa, there is a significant gap in private-sector financing, which has hampered the growth of businesses and investment. This financing gap is caused by a combination of factors, including:

Weak financial infrastructure: The underdeveloped financial infrastructure in the region, including limited credit bureaus, vulnerable payment systems, and low financial literacy levels, makes it difficult for businesses to access finance. Limited availability of risk capital: The need for more venture capital, angel investors, and other forms of risk capital in North Africa hampers the growth of startups and innovative SMEs.

Lack of clear policy and regulatory frameworks : In North Africa, several countries have adopted climate policies, but the implementation of these policies remains a challenge (AfDB, 2020). According to the IRENA (2020), apart from few countries such as Egypt and Morocco, North Africa lacks clear and consistent policies and regulatory frameworks to support private sector investment in renewable energy. Additionally, the limited capacity to design, implement and monitor climate finance policies and programs further hinders the effectiveness of these policies.

Limited access to finance: This is particularly true for small and medium-sized enterprises (SMEs) and start-ups, which often need more collateral and credit history to access finance. According to a report by the World Bank (2018), only 15 percent of SMEs in the Middle East and North Africa have access to formal finance.

Lack of project bankability: Many green growth projects in North Africa may lack the necessary scale, track record, or risk-mitigation measures to attract private sector financing (AfDB, 2021). In 2019, only 12 percent of the renewable energy project proposals submitted to AfDB for financing in the region were deemed bankable.

Perception of high risk: This is particularly true for investments in renewable energy due to the uncertainty of policies and regulations. As a result, private sector investors may require higher rates of return to compensate for the perceived risk.

Political and economic instability: Political instability, conflict, and economic uncertainty can create a challenging business environment for private sector investors in the Sahel region and in countries experiencing political turmoil such as Libya.

Lack of supporting infrastructure: In some cases, there may be a lack of supporting infrastructure, such as renewable energy transmission lines or waste management facilities, making it difficult for private sector investors to implement innovative projects.

High levels of external debt: In the absence of substantial global efforts to help reduce the debt burden, many countries are hesitant to take on additional debt to address climate risk.

Insufficient access to international capital markets: Increased access would enable North African countries to raise capital from international private sector actors based or registered markets outside of Africa. Participation in these markets also lowers the risk profiles of countries and boosts investor confidence in the national and regional markets.

Limited capacity for project development: Local capacity for project development is a crucial barrier to developing renewable energy projects

in North Africa (IRENA, 2021). This is due to lack of expertise and the need to develop bankable projects that meet the requirements of private sector investors. Project preparation grants and capacity building programs could help improve the bankability of projects.

Limited awareness and knowledge of innovative financing mechanisms: Innovative financing mechanisms such as green bonds, blended finance, and impact investing are relatively new concepts in North Africa, and many private sector investors may not be familiar with them or understand their potential benefits. There is lack of knowledge about the potential benefits of climate action and green growth among private sector investors, which may lead to a reluctance to invest in these areas and new instruments.

External shocks can affect access to credits: For instance, the crises of the COVID-19 pandemic and Russia's invasion of Ukraine have reduced the liquidity of international investors, including those looking to invest in the African continent. Private investors have stressed out balance sheets, meaning there is limited scope for them to increase investments in green growth sectors.

2.3.3 Opportunities for leveraging private sector financing for climate action and green growth in North Africa

North African countries have taken various measures to unlock private sector investments in climate action and green growth. These measures aim to create an environment that is more conducive to private sector investment in renewable energy and other green growth sectors and are intended to support the transition to a more sustainable and low-carbon economy in the region. Overall, leveraging private sector financing for green growth in North Africa will require further coordinated efforts from governments, financial institutions, and the private sector to overcome the barriers and seize the following opportunities that exist in the region.

Abundant renewable energy resources: North Africa has abundant renewable energy resources, including solar, wind, and hydropower. This presents an opportunity for private sector investment in renewable energy projects.

Growing demand for green technologies and services: As the costs of renewable energy technologies continue to fall, this creates opportunities for private sector investors who can provide innovative solutions to meet this demand. According to the IFC (2019), the region's renewable energy market is expected to grow by over 6 percent annually between 2019 and 2030.
Government support for green growth: There are synergies between green growth and climate action. Strategies to support the transition to a low-carbon, sustainable economy create a favorable environment for private sector investment in green growth initiatives. Many North African governments have implemented policies and incentives to support the development of the sector, including feed-in tariffs, tax incentives, and subsidies (IRENA, 2020). Algeria, Egypt, Morocco have implemented a feed-in tariff system to incentivize private sector investment in renewable energy projects, including solar and wind power. The Egyptian Government has also introduced a net metering scheme that allows homeowners and businesses to sell excess electricity generated from rooftop solar panels back to the grid. Morocco has implemented a green energy investment fund and launched a series of renewable energy tenders to attract private sector investment, including an 850 MW wind and solar tender in 2020. Mauritania has developed a National Renewable Energy and Energy Efficiency Plan (PNEREE) and launched tenders to attract private sector investment in renewable energy projects, including a 30 MW solar project tender in 2017 and a 50 MW wind project tender in 2020. Mauritania has provided tax incentives for private sector investment in renewable energy and energy efficiency projects, including exemptions from customs duties and value-added tax. Tunisia has launched tenders to attract private sector investment, including a 500 MW solar tender in 2020.

International support and partnerships: International organizations and development partners have provided technical assistance, capacity building, and financing to support the development of green growth projects and the mobilization of private sector financing. For instance, in 2019, the IFC invested over USD 300 million in renewable energy and energy efficiency projects in the region. Overall, North African countries have received significant international support for their green growth agendas, including from multilateral development banks and international organizations. These partnerships have helped to mobilize private sector investment in climate action and green growth projects.

Public-Private Partnerships: Public-Private Partnerships (PPPs) can help to leverage private sector financing for green growth initiatives by bringing together public and private sector resources and expertise. For example, in Morocco, the Government has established a partnership with the private sector to develop a wind farm in the Tangier region. Algeria has established a public-private partnership with the French company Total to build a solar power plant in the southern part of the country. Also, the partnership between the Egyptian Government and the French company Engie aims to build a wind farm in the Gulf of Suez.

2.3.4 Green financing mechanisms available to unlock private sector investments in climate action and green growth

North African countries have issued green bonds to attract private sector investment in climate action and green growth projects. In 2019, Tunisia issued its first green bond, raising USD 80 million for renewable energy and energy efficiency projects. The Algerian Government has established the "Fonds National pour la Maîtrise de l'Energie" (FNME), which provides financing for energy efficiency and renewable energy projects. Egypt has issued green bonds to finance climate-friendly projects and attract private sector investment, including a USD 750 million bond issued in 2019 to fund renewable energy and energy efficiency projects.

The Egyptian Government has established green investment facilities to support private sector investment in climate action and green growth, including the "Green Economy Financing Facility" (GEFF). Mauritania has established a USD 28 million green credit line from the African Development Bank to finance renewable energy and energy efficiency projects. Morocco and Tunisia have also developed a range of financing mechanisms to support private sector investment in climate action and green growth, including green bond issuances in the market and a green credit line from the European Investment Bank.

Additional green financing mechanisms include:

Debt-for-climate swaps and debt-for-nature swaps: Creditors provide debt relief in return for a government commitment to, say, decarbonize the economy, invest in climate-resilient infrastructure, or protect biodiverse forests or reefs.

Dedicated climate or green finance sources: North African countries can leverage dedicated climate or green finance (see Annex 1) such as the Climate Investment Funds (CIFs) to finance climate-friendly projects in North Africa. The funds provide loans, grants, and other forms of support to finance projects that have climate or green growth benefits.

Impact investing: North African countries create a favorable policy environment and provide financial incentives to attract impact investors to generate social and environmental benefits in addition to financial returns.

Carbon markets: Carbon markets can incentivize the reduction of greenhouse gas emissions in North Africa by putting a price on carbon, incentivizing

companies to reduce their emissions and invest in clean technologies. Revenue generated from carbon pricing policies can be used to finance climate-friendly projects. The global carbon market reached a value of USD 215 billion in 2020, with the European Union Emissions Trading System (EU ETS) accounting for most of the trading activity.

Blended finance: North African countries can use public funds to leverage private sector investment in development projects. For example, a government could provide a partial guarantee for a private sector investment in a renewable energy project to reduce the investment risk and encourage private sector participation.

Green Bonds Guarantee Facility: The facility would provide a guarantee to investors who purchase green bonds issued by North African countries, reducing the investment risk, and making green investments more attractive.

Philanthropic funding: Philanthropic organizations can provide grants and other forms of funding to support sustainable development and climate action initiatives in North Africa.

Other innovative financing mechanisms are being explored in North Africa, such as crowdfunding and green microfinance. In Morocco, the green Loan Fund supports small and medium-sized enterprises (SMEs) in the renewable energy and energy efficiency sectors. Similarly, the Tunisian Bank of Solidarity has launched a green microfinance program to support small-scale renewable energy projects.

In general, the above-mentioned sources and instruments for innovative financing have the potential to mobilize significant amounts of private sector capital for climate action and green growth initiatives in North Africa. The effectiveness of each mechanism depends on a range of factors, such as the specific context and the availability of funding. Moreover, the success of these initiatives depends on the presence of clear policy and regulatory frameworks, capacity building, and the establishment of appropriate risk mitigation instruments. While there are sources and instruments for innovative financing under consideration for climate action and green growth in North Africa, greater efforts are needed to increase awareness, build institutional capacity, and address the challenges of accessing climate finance in the region (Box 2.1).

2.4 The role of DFIs and MDBs in unlocking private sector financing towards climate transitions and green growth

2.4.1 The key roles of DFIs and MDBs

MDBs and DFIs have a huge potential to unleash and mobilize climate finance. DFIs and MDBs have played a critical role in unlocking development and international public finance in the past. These institutions have provided financing and technical assistance to developing countries, helping them to address poverty, inequality, and other development challenges. For instance, the lending arms of the World Bank - the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) - had committed a total of over 40 billion USD in the fiscal year 2021. According to the Climate Policy Initiative (2022), DFIs and climate funds were the largest source of public climate finance (49 percent), followed by bilateral development partners including bilateral DFIs (22 percent), international governments (16 percent), and climate funds (4 percent). Here are some ways in which they can contribute:

Providing financing and technical assistance to the private sector, which can help companies invest in renewable energy, energy efficiency, and other green technologies. This can be done through loans, guarantees, equity investments, and other financial instruments. For instance, the European

Box 2.1 : Overview of the performance of the private sector in North Africa as compared to other regions

The private sector's performance on climate action and green growth in North Africa has been mixed compared to other regions of the world. While there has been progress in some areas, there are still significant challenges to address. Here are some figures and citations that highlight the private sector's performance on climate action and green growth in North Africa compared to other regions:

Renewable energy investment: According to BloombergNEF (2021), North Africa accounted for just 1 percent of global renewable energy investment in 2020, with only USD 1.2 billion invested in the region. This compares to USD 303 billion invested globally. By contrast, Europe accounted for 43 percent of global renewable energy investment in 2020, with USD 130 billion invested in the region.

Private sector engagement in climate action and green growth in North Africa has been mixed. While there have been some notable investments in renewable energy projects, many private sector actors in the region have been slow to engage with climate-related issues. For example, a report by the United Nations Environment Program (UNEP) noted that the private sector in North Africa had been slow to adopt sustainable business practices and integrate environmental considerations into their operations. The private sector is not really investing in adaptation technologies or measures.

Green bond issuance has been relatively low in North Africa compared to other regions of the world. According to a report by Climate Bonds Initiative, North Africa accounted for just 1 percent of global green bond issuance in 2020, with USD 213 million in green bonds issued in the region. This compares to USD 269 billion in global green bond issuance. By contrast, Europe accounted for 60 percent of global green bond issuance in 2020, with USD 161 billion in green bonds issued in the region.

Corporate sustainability reporting is another important indicator of private sector performance on climate action and green growth. According to the Global Reporting Initiative (GRI), only 10 companies in North Africa reported on their sustainability performance in 2020. This contrasts with developed countries, where sustainability reporting is more widespread, with over 90 percent of companies in some countries reporting on their sustainability performance.

Source: BloombergNEF, 2021; UNEP, 2018; CBI, 2021

Bank for Reconstruction and Development (EBRD) has provided a USD 265 million loan to support the construction of the Benban Solar Park in Egypt, the largest solar installation in the world. The EBRD also provided technical assistance to help improve the regulatory framework for renewable energy in Egypt, which helped attract private sector investment in the project (EBRD, 2020). Similarly, the International Finance Corporation (IFC) has provided a USD 20 million loan to support the construction of a wind farm in Morocco and helped the Moroccan government develop a regulatory framework for renewable energy that attracted private sector investment in the project.

Mitigating risks: One of the main challenges facing private sector investment in climate transitions and green growth is the high level of risk involved. DFIs and MDBs can provide risk-sharing instruments, such as partial credit guarantees, political risk insurance, and currency hedging. The African Development Bank (AfDB) provided a partial credit guarantee to support a USD 50 million loan to finance the construction of a solar power plant in Tunisia, which helped attract private sector investment (AfDB, 2018). The Islamic Development Bank (IsDB) provided political risk insurance to support a USD 250 million loan to finance the construction of a wind farm in Egypt. The insurance protected the lender from expropriation, that could have negatively impacted on the project.

Supporting policy and regulatory frameworks: DFIs and MDBs can support the development of policy and regulatory frameworks that encourage private sector investment in climate transitions and green growth. This can include working with governments to create incentives for renewable energy development, strengthening environmental and social safeguards, and promoting the use of green finance standards. The European Investment Bank (EIB) provided technical assistance to the Tunisian Government to incentivize the private sector to invest in energy efficiency measures, such as building retrofits and renewable energy technologies. The World Bank provided technical assistance to the Moroccan Government to encourage private sector investment in renewable energy projects, such as feed-in tariffs and tax incentives (World Bank, 2019).

Catalyzing investments: DFIs and MDBs can leverage their own resources to attract additional financing from other sources. For example, they can use their own capital to create investment funds that focus on climate transitions and green growth. For instance, the AfDB has created the Facility for Energy Inclusion (FEI), a USD 500 million investment platform that provides financing and technical assistance to small-scale renewable energy projects in Africa. The FEI uses AfDB capital to leverage additional financing from other sources, such as private sector investors and donor agencies. The European Investment Fund (EIF), a subsidiary of the EIB, has created the Euromed Renewable Energy Fund (EREF), a USD 120 million investment fund that provides financing to renewable energy projects in the Mediterranean region, including North African countries. The EIF uses its own capital to attract additional financing from other sources, such as private sector investors and public sector institutions.

In terms of achievements, DFIs and MDBs have supported the development and financing of renewable energy projects in North African countries, which has helped to reduce greenhouse gas emissions and improve energy security. DFIs and MDBs have also supported the promotion of energy efficiency measures in North African countries to reduce energy consumption and greenhouse gas emissions. For example, the Agence Française de Développement (AFD) provided a USD 66 million loan to support the modernization of the electricity distribution network in Tunisia in 2018. The International Finance Corporation (IFC) provided a USD 125 million loan to support the development of wind farms in Morocco in 2020, which is expected to help reduce greenhouse gas emissions and support the country's transition to a low-carbon economy. These institutions have played a key role in supporting private sector investment in climate-friendly projects in North African countries.

Overall, DFIs and MDBs have made significant contributions to unlocking private sector financing towards climate transitions and green growth in North African countries, which is crucial for achieving global climate goals and promoting sustainable development in the region.

2.4.2 Measures DFIs and MDBs need to take to create an enabling environment

DFIs and MDBs can take several actions and implement certain policies to enable the private sector to finance climate actions. This can help to accelerate the transition to a low-carbon economy and support sustainable development in developing countries. Some of these actions and policies include:

De-risking investments: One of the main reasons why private sector investors may be hesitant to invest in developing countries is due to the high risk associated with these markets.

Strengthening regulatory and institutional frameworks: A supportive regulatory and institutional environment that provides clarity and

stability is critical for private sector investment. DFIs and MDBs can provide technical assistance to strengthen institutions such as financial regulators, tax authorities, and land administration agencies. They can work with governments to establish policies and regulations that promote climate-friendly investment and create a level playing field for all investors.

Mobilizing the private sector and institutional capital: The private sector and institutional capital represents a critical source of financing that countries could tap into. DFIs and MDBs can leverage their own resources to mobilize private sector and institutional capital. For example, they can provide financing on a subordinated basis, which can reduce the perceived risk for private investors and attract additional capital to the project.

Supporting the development of local capital markets: DFIs and MDBs can provide technical assistance and financing to local financial institutions, such as banks and capital market regulators.

Promoting transparency and accountability: DFIs and MDBs can require companies and projects that they finance to disclose relevant information on their operations and impact. This can help to build trust with investors and ensure that financing is being used for its intended purposes.

Developing climate-friendly investment strategies: DFIs and MDBs can develop investment strategies that are aligned with climate goals, such as the Paris Agreement, and prioritize investments in renewable energy, energy efficiency, sustainable transport, and other climate-friendly sectors.

Providing technical assistance: DFIs and MDBs can provide technical assistance to help companies and project developers to identify and implement climate-friendly practices. This can include support for project design, climate risk assessments, and the development of low-carbon technologies.

Promoting green finance: DFIs and MDBs can promote the development of green bonds and green loans to encourage private sector investment in climate-friendly or green growth-related projects. They can also work with financial institutions to develop green lending standards and guidelines.

In addition, DFIs should diversify their currently limited set of financial instruments to channel their investments. So far, 77 percent of DFIs funding was channeled through loans (47 percent at market rate and 30 percent at concessional rate), followed by 20 percent grants, and 3 percent equity financing.

2.4.3 Enabling factors needed by DFIs and MDBs

Despite the significant contribution of DFIs and MDBs, there are still several challenges that hamper their ability to achieve their objectives. To effectively support sustainable economic development, DFIs and MDBs need enabling factors that can enhance their operational effectiveness and efficiency. These enabling factors include institutional capacity building, governance structure, financial instruments, and partnerships with the private sector.

Strong governance and management structures to ensure accountability, transparency, and efficient operations. This includes clear policies and procedures for investment decision-making, risk management, and reporting.

Adequate funding and resources to support their operations and investments. This includes capital contributions from shareholder governments, as well as access to capital markets and other sources of financing.

Expertise in green finance and sustainability to support the green growth transition, including

expertise in renewable energy, energy efficiency, sustainable land use, and climate adaptation. Partnerships and collaboration with governments, private sector companies, and other stakeholders to effectively support the transition to a green economy.

This includes working closely with governments to develop policy frameworks and investment pipelines, as well as collaborating with private sector companies to develop and finance green projects.

Innovative financing mechanisms such as green bonds, blended finance structures, and public-private partnerships to mobilize private sector investment in green projects.

Capacity building and technical assistance: DFIs and MDBs need to provide capacity building and technical assistance to governments and private sector companies to support the development of green projects. This includes providing training and technical support in areas such as project development, risk assessment, and financial analysis.

Accelerate the pace of structural transformation, industrialization, and innovation: North African economies are not sufficiently diversified and industrialized. This affects their capacities to create wealth and mobilize resources necessary to finance climate transactions and green growth. DFS and MDBs therefore need to help them foster structural transformation and promote industrialization.

Overall, DFIs and MDBs need a combination of financial, technical, and operational resources to effectively support the transition to a low-carbon,

Box 2.2 : What development finance institutions and multilateral development banks should do to mobilize private sector investment

Development finance institutions (DFIs) and multilateral development banks (MDBs) can take several actions to mobilize private sector investment in regions. Here are some potential actions that DFIs and MDBs could consider:

Promoting financial inclusion: Financial inclusion is critical for economic development, as it allows more people to access financial services and participate in the formal economy. DFIs and MDBs can promote financial inclusion by supporting microfinance institutions and other financial intermediaries that serve underbanked populations.

Supporting small and medium-sized enterprises (SMEs): SMEs are a key engine of economic growth in many countries. DFIs and MDBs can support SMEs by providing financing, technical assistance, and capacity building. They can also work with governments to create an enabling environment for SMEs, such as reducing regulatory barriers and improving access to finance.

Supporting infrastructure development: Infrastructure development is critical for economic growth and private sector investment. DFIs and MDBs can support infrastructure development by providing financing for energy, transport, water and sanitation, and other infrastructure projects. They can also work with governments to develop public-private partnerships (PPPs) that can help to attract private sector investment in infrastructure projects.

Promoting green finance: DFIs and MDBs can promote the development of green finance products, such as green bonds and green loans, to encourage private sector investment in climate-friendly projects. They can also work with financial institutions to develop green lending standards and guidelines.

Supporting climate action: Climate change is a major challenge facing the world. DFIs and MDBs can support climate action by providing financing for renewable energy, energy efficiency, and other climate-friendly projects. They can also work with governments to develop climate policies and regulations that promote private sector investment in climate-friendly projects.

climate resilient, green economy. By leveraging their expertise, resources, and partnerships, DFIs and MDBs mobilize private sector investment and support the development of sustainable and climate-resilient economies.

2.4.4 What AfDB should do

In addition to actions DFIs and MDBs can undertake to mobilize private sector investment in regions (Box 2.2), as a development finance institution focused on Africa, the African Development Bank (AfDB) can take additional actions to support economic development and promote private sector investment on the continent. Here are some potential actions that the AfDB could consider:

Mobilizing private sector capital: The AfDB can leverage its own resources to mobilize private sector capital. For example, it can provide financing on a subordinated basis, which can reduce the perceived risk for private investors and attract additional capital to the project. The AfDB can also develop new financing instruments, such as blended finance, to mobilize additional private sector capital.

Supporting infrastructure development: Infrastructure development is critical for economic growth and private sector investment. The AfDB can support infrastructure development in Africa by providing financing for energy, transport, water and sanitation, and other infrastructure projects. The AfDB can also support the development of regional infrastructure, which can help to improve connectivity and reduce trade barriers.

Promoting regional integration: Regional integration can help to increase trade and investment in Africa. The AfDB can support regional integration by financing regional infrastructure projects, supporting policy harmonization, and promoting regional trade agreements.

2.5 Policy recommendations

Addressing the private sector financing gap for climate action and green growth in North Africa requires a comprehensive approach that addresses the various factors contributing to the issue. By improving access to finance, strengthening governance frameworks, improving financial infrastructure, encouraging foreign investment, and fostering entrepreneurship and innovation, governments can help to create a more vibrant and dynamic private sector in the region.

Enhance access to finance: One of the main factors contributing to the private sector financing gap is the lack of access to finance. Governments in North Africa can work to address this by establishing policies and initiatives that promote access to finance for businesses, and tiny and medium-sized enterprises (SMEs). This could include the creation of credit guarantee schemes, the establishment of specialized SME banks, and the provision of tax incentives for investors. Governments can also facilitate access to finance by creating financial instruments that reduce the risk of investing in green technologies and by providing guarantees and insurance mechanisms that protect investors from losses. Governments and development partners need to establish financial mechanisms that can provide affordable and accessible financing to support climate action and green growth initiatives.

Improve availability of financing instruments: The availability of financing instruments that are tailored to the needs of green growth projects in North Africa is often limited. This can include instruments such as green bonds, project finance, and blended finance, which can be critical in mobilizing private-sector financing. In 2019, only 7 percent of total bank lending in the region was directed toward green projects (World Bank, 2019). Provide strong policy frameworks: Many investment risks cited by investors (e.g., political, legal/fiscal

stability, currency, credit/payment, and project development) are not project or sector-specific but stem from the overall investment environment in the country. Addressing these risks will require comprehensive solutions and conversations between countries and the private sector on investment barriers. Clear policy and regulatory frameworks that support sustainable development and incentivize private sector investment are critical for the success of innovative financing mechanisms.

Strengthen governance frameworks: Weak governance frameworks for example in Libya can create barriers to private sector financing. Governments can work to address this by strengthening institutions such as regulatory bodies, legal systems, and property rights frameworks. This can help create a more stable and predictable business environment, which can encourage more private-sector investment.

Improve financial infrastructure: Inadequate financial infrastructure can also contribute to the private sector financing gap. Governments can work to address this by investing in financial infrastructure such as payment systems, credit reporting agencies, and stock exchanges. This can help to create a more efficient financial system, which can in turn facilitate more private-sector financing.

Encourage foreign investment: Foreign investment can play a significant role in addressing the private sector financing gap in North Africa. Governments can work to encourage foreign investment by creating policies and incentives that promote foreign investment, such as tax breaks and streamlined regulatory processes.

Foster entrepreneurship and innovation: Governments can support entrepreneurship and innovation by creating incubators and accelerators, offering training and mentorship programs, and providing seed funding for startups.

Provide capacity building and technical assistance: Capacity building and technical assistance can help build the skills and knowledge necessary to support private sector investment in climate action and green growth. Capacity-building initiatives are essential for increasing the capacity of local stakeholders to develop, implement, and manage climate action and green growth projects. For example, providing training and support to financial institutions and investors can help increase their understanding of climate-related risks and opportunities, and help them better evaluate and manage these risks and take advantage of the opportunities.

Promote public-private partnerships: Public-private partnerships can help leverage private sector investment for climate action and green growth. Governments can create frameworks for public-private partnerships that provide a clear role for each partner and ensure that benefits are shared fairly.

Improved regulatory environments: Inconsistent and unpredictable regulatory environments can create risks for private sector investment. Governments can provide clear and transparent regulations that reduce risks for investors, such as streamlining permitting processes and creating transparent regulatory systems.

Reinforce risk-management framework: Private sector investors need to be assured of the profitability and viability of their investments in climate action and green growth. Risk mitigation instruments such as insurance, guarantees, and hedging mechanisms can help to reduce the perceived risks associated with such investments.

Potential policy recommendations that governments and development finance institutions (DFIs) could consider supporting private sector financing for climate and green growth in North Africa countries.

Provide stable and long-term policy frameworks: Governments can provide stable and long-term policy frameworks to support the transition to a green economy. This could include clear and ambitious targets for renewable energy and carbon reduction, as well as supportive regulations and incentives for green investments. Providing a stable and predictable policy environment can help to reduce the risks and uncertainty for private sector investors. National green growth strategies and climate change plans (NDCs and LT-LEDS) should be translated into sector and local targets, as well as investment action plans: Governments can work on translating national green growth strategies and climate change plans (NDCs and LT-LEDS) into sector and local targets and investment action plans to attract participation and investment from the private sector and development financiers.

Promote energy efficiency: Governments can promote energy efficiency in buildings, transportation, and industry to reduce energy consumption and greenhouse gas emissions. This can be achieved through regulatory standards, incentives, and public education campaigns. By reducing energy consumption, private sector companies can lower their operating costs and become more competitive. On the other hand, this can help to improve energy efficiency, thereby reducing greenhouse gas emissions, and improving energy security of the countries.

Support green innovation: Governments can support green innovation by providing funding for research and development in renewable energy, energy storage, and other green technologies. DFIs can also play a role by providing financing and technical assistance to green startups and SMEs.

Implement carbon pricing: Governments can implement carbon pricing mechanisms, such as carbon taxes or cap-and-trade systems, to incentivize the transition to a low-carbon economy. Carbon pricing can provide a financial incentive for companies to reduce their carbon emissions and invest in renewable energies.

Develop green finance mechanisms: Governments and DFIs can develop innovative green finance mechanisms, such as green bonds and green loans, to mobilize private sector investment in climate-friendly projects. These mechanisms can help to reduce the cost of financing and provide access to capital for green projects.

Provide financial incentives for green investments: Governments can provide financial incentives, such as tax breaks or subsidies, for companies and individuals to invest in renewable energy and other climate-friendly projects. This can help to reduce the financial barriers to investing in green technologies.

Promote the circular economy: The promotion of a circular economy can help governments to reduce waste, create green jobs, and promote sustainable consumption and production. By reducing and promoting resource efficiency, governments reduce greenhouse gas emissions and promote sustainable development.

Establish public-private partnerships: Governments can establish public-private partnerships (PPPs) to leverage private sector investment in green infrastructure and other projects. PPPs can help to share risks and costs between the public and private sectors and increase the scalability of green projects.

Encourage regional integration for green growth: Regional integration can help to increase green growth investment in Africa. The AfDB can support regional integration by financing regional infrastructure projects, supporting policy harmonization, and promoting regional green growth agreements.

Support green infrastructure development: Governments can support infrastructure development for green growth by providing financing for energy, transport, water and sanitation, and other infrastructure projects. They can also work with governments to develop public-private partnerships (PPPs) that can help to attract private sector investment in infrastructure projects. Promote sustainable agriculture: Government can help private investors to engage in sustainable, climate-smart agriculture practices, including organic farming, which can help reduce carbon emissions and promote the efficient use of natural resources. This can help not only to reduce carbon emissions but also contributes to the food and nutrition security of the region.

Provide financing and risk-sharing instruments: Governments and financial institutions can offer long-term financing and risk-sharing instruments to private sector investors to participate in green growth that contributes to the reduction of carbon emissions, while building the resilience capacities of the countries. This can include providing loans, guarantees, equity, and other types of financial support.

Support research and development: Governments can support research and development in renewable energy and other green technologies to drive innovation and reduce costs. This can help to make renewable energy more competitive with fossil fuels.

Integration of short and long-term priorities of green growth: The governments and private investors can work on short-term priorities of climate action and green growth, while investing in long-term climate action and green growth to ensure sustained benefits for their investments.
Ensure a high-level political commitment and raise awareness among key stakeholders: Governments can undertake multiple activities to support international cooperation, national dialogue, and the development of a national vision for climate-resilient and inclusive green growth.

Invest in human capital: Build human capacity to support and harness the benefits of the green growth transition by mainstreaming green growth into formal education curricula, supporting Technical and Vocational Education and Training (TVET) in key sectors, supporting green growth education among civil servants, private sector investors, and raising public awareness of the declining costs and growing benefits of green growth technologies.

Foster sustainable land use practices: Governments can foster sustainable land use practices, such as reforestation and sustainable agriculture, to reduce carbon emissions and promote biodiversity. This can also create new business opportunities and support rural development.

Mainstreaming green growth approaches into national development planning and budgeting processes: Governments can do this by prioritizing key sectors and low-hanging fruit opportunities to demonstrate early benefits and gain stakeholder buy-in. Key sectors are those in which green growth action can both drive job creation and contribute to the achievement of key SDGs. Climate-smart agriculture, off-grid renewable energy access, and sustainable public transportation are examples of key activities.

Overall, these policy recommendations can help to encourage private sector investment in the transition to a green economy. DFIs can play a critical role in supporting these policies by providing financing, technical assistance, and capacity building to governments and private sector companies.

3

NATURAL CAPITAL FOR CLIMATE FINANCE AND GREEN GROWTH IN NORTH AFRICA

KEY MESSAGES

- North Africa's natural capital, such as forests, water and land resources, fisheries, oil, gas, and minerals, provides a range of ecosystem services essential for human well-being and sustainable development. North Africa has the largest natural gas reserves in Africa, representing half of Africa's total reserves. Mining and quarrying represented a value added of USD 95.3 billion in 2021. The region possesses significant mineral resources and renewables such as wind and solar, which can be harnessed to provide clean energy and move towards green growth. However, this natural capital is at risk due to climate change and environmental degradation, which could have detrimental effects on social and economic development.

- North Africa has huge potential to benefit from its natural resources to finance its development goals. Investing in the sustainable management of natural capital can provide a complementary financing option for climate and green growth initiatives in North African countries, thereby contributing to economic growth, job creation and poverty reduction. Integrating the value of natural capital into economic decision-making, such as through natural capital accounting and valuation, can help promote sustainable management practices.

- Regional cooperation and collaboration can help to address common challenges and promote the sustainable management of shared natural resources, such as water resources and biodiversity. Engaging with private sector actors and promoting public-private partnerships can help to mobilize financing for natural capital investments and support the transition towards a green economy.

- Harnessing natural capital as a complementary financing option for climate and green growth requires political will, commitment, and coordination from governments and other stakeholders, as well as innovative financing mechanisms and policies to support sustainable natural resource management. A comprehensive approach that strengthens governance, institutional capacity and promote sustainable resource management practices is required.

- International actors, including the African Development Bank (AfDB) and other international organizations and partners, have a crucial role in addressing these challenges by providing technical assistance, financing, advocacy and awareness-raising, collaboration and partnerships, and monitoring and evaluation.

3.1 North Africa's natural wealth

North Africa has significant natural wealth[25], including diverse ecosystems, mineral resources, and renewable energy potential. The region covers approximately 6.8 million square kilometers and includes Algeria, Egypt, Libya, Mauritania, Morocco, and Tunisia. Climate change and environmental degradation are some of humanity's biggest challenges. As the region grapples with the impacts of climate change, there is a growing need for innovative and sustainable financing options that go beyond traditional funding sources and support climate action and green growth. One such option is harnessing natural capital as a complementary financing option for climate and green growth in North Africa. Natural capital (NC) refers to the stocks of ecosystems' biotic and abiotic (living and non-living) components that interact to provide goods and services beneficial to human societies (Guerry et al., 2015). Benefits include food and fiber production, clean water and air, and recreation. Biodiversity comprises the living component of NC and is a good indicator of the habitat conditions provided by the abiotic components of NC, including soil, water, and air, where plants and animals can perform their roles and contribute to the overall functioning of ecosystems (Carvalho, 2023).

"The region has some of the world's largest oil and gas reserves, particularly in Algeria, Libya, Mauritania, and Egypt."

By valuing and investing in natural capital, countries in North Africa can protect their ecosystems and biodiversity while also generating economic growth and creating employment opportunities. To put it differently, when recognizing and valuing the benefits that these natural assets provide, it becomes feasible to develop innovative financing mechanisms that support sustainable development and climate action. North Africa is home to a wide range of natural resources, including renewable energy sources, forests, and marine ecosystems. Harnessing these resources presents a significant opportunity for the region to generate economic growth while promoting climate action and environmental sustainability.

In recent years, there has been growing recognition of the potential of natural capital as a financing option for climate and green growth in North Africa. This approach involves valuing the services provided by natural resources and ecosystems and incorporating these values into decision-making processes related to economic development. By taking a natural capital approach, policymakers and businesses in North Africa can unlock new sources of financing for climate and green growth projects. This includes exploring innovative financing mechanisms such as payments for ecosystem services[26] and green bonds.

3.1.1 Overview of the natural wealth of North Africa

One of the most prominent natural resources in North Africa is oil and gas. The region has some of the world's largest oil and gas reserves, particularly in Algeria, Libya, Mauritania, and Egypt. Mauritania is on the verge of becoming one of the most important gas producers in Africa. Estimated gas reserves of 2.8 trillion cubic meters surpass those of current top African gas-producing nations like Egypt and Libya[27]. These resources have been a significant source of revenue but also come with environmental and social costs, including air and water pollution and land degradation. In addition

[25] Wealth accounting—the balance sheet for a country—captures the value of all the assets that generate income and support human well-being. Gross domestic product (GDP) indicates how much monetary income or output a country creates in a year; wealth indicates the value of the underlying national assets and the prospects for maintaining and increasing that income over the long term. When evaluated together, GDP and wealth are complementary indicators for measuring economic performance and provide a fuller picture.

[26] Wunder (2005) defined Payments for Ecosystem Services (PES) as a voluntary transaction where a well-defined environmental service (ES; or a land use likely to secure that service) is being "bought" by a (minimum one) ES buyer from a (minimum one) ES provider if and only if the ES provider secures ES provision (conditionality).

[27] Mauritania to Become a New Global Gas Hub as Market Expansion Intensifies - AfricaBusiness.com

to oil and gas, North Africa has significant mineral deposits, including phosphates, iron, zinc, and lead. Morocco and Tunisia are major producers of phosphates for fertilizer production, and other industries such as lithium-ion battery manufacturing. Morocco, which also mines cobalt, could therefore leverage these two minerals (phosphate and cobalt) to establish a battery manufacturing plant to feed the electric vehicle industry. Mauritania is a leading producer of iron ore and other metals.

North Africa is also home to diverse ecosystems, including forests, wetlands, and coastal areas, which provide essential ecosystem services such as carbon sequestration, water filtration, and erosion control. However, these ecosystems are threatened by climate change, desertification, and overexploitation of natural resources.

Forests and woodlands: According to the FAO (2020), the total forest area in North Africa in 2020 was approximately 23.7 million hectaress. These forests provide a wide range of ecosystem services, including carbon sequestration, water regulation, and biodiversity conservation. North Africa has diverse forests and woodlands, including the Atlas cedar forest in Morocco and the cork oak forests in Tunisia. However, these forests are threatened by deforestation, overgrazing, and climate change. Morocco has the largest forest area in North Africa, covering 9.6 million hectaress, but the country has experienced significant deforestation due to agricultural expansion, overgrazing, and urbanization (World Bank, 2020). Morocco is the largest producer of wood products in the region. Algeria has the second-largest forest area in the region, covering 8.8 million hectaress, but the country has also experienced deforestation and forest degradation due to fuelwood harvesting, urbanization, and forest fires (FAO, 2020).

Water resources: Water is a critical natural resource in North Africa, which is characterized by arid and semi-arid climates. The region has several rivers, including the Nile, the primary source of water for Egypt, and the Maghreb rivers which flow through Algeria, Tunisia, and Morocco. The Nile River is under threat from climate change, pollution, and competing demands from upstream countries. Overall, water resources in the region are under increasing pressure from climate change, population growth, and unsustainable water use practices. North Africa is one of the most water-scarce regions in the world, with an average annual renewable water resource of 934 cubic meters per capita, below the threshold of 1,000 cubic meters per capita that is considered the minimum for water security (World Bank, 2021). Average annual precipitations are of less than 100 mm in many areas. Moreover, projections show that water stress levels will worsen for most of the countries in the region by 2040 (AfDB, 2022). The region also has several essential aquifers, vital water sources for agriculture, industry, and domestic use. Groundwater is the main source of water in North Africa, accounting for over 75 percent of total water use in some countries. However, groundwater reserves are being depleted due to overexploitation and climate change. The region relies heavily on irrigation for agricultural production. According to the World Bank (2021), the agricultural sector is the largest user of water in the region, accounting for about 85 percent of total water use.

Wetlands: North Africa has several important wetlands that provide critical habitats for migratory birds and other wildlife. These wetlands, such as the Diawling National Park in Mauritania (home to over 120 species of birds and manatees) and the Djurdjura National Park in Algeria, offer opportunities for bird watching, nature walks, and other ecotourism activities. The Ichkeul National Park in Tunisia is a wetland area that is a UNESCO World Heritage Site and an important stopover site for migratory birds. It also supports a variety of other wildlife, including Barbary macaques and North African boars.

Biodiversity: North Africa is home to a diverse range of flora and fauna, including several endemic species. However, many species are threatened with extinction due to habitat loss, overexploitation, and climate change. According to the International Union for Conservation of Nature (IUCN), 25 percent of mammal species and 40 percent of bird species in North Africa are threatened with extinction. North Africa is home to approximately five percent of the world's plant species and four percent of the world's vertebrate species[28]. The Barbary macaque, which is endemic to the Atlas Mountains in Algeria and Morocco, is listed as endangered on the IUCN Red List of Threatened Species. The Mediterranean monk seal, which is found in coastal areas of North Africa, is also listed as endangered.

Marine environment and fishery resources: The North African region is the leading region in marine fisheries production, with 2.9 million tons in 2020, i.e., 41 percent of the continent's catch. This ranking is due to abundant resources in the Atlantic of Morocco and Mauritania, the largest exporters in North Africa. However, overfishing, and unsustainable fishing practices have led to declining fish populations in some areas. Climate change is also evident in the increased frequency of severe weather events that threaten the safety of fishers, especially artisanal fishers (Kifani et al, 2018). The Canary Current ecosystem has been experiencing a decrease in primary productivity over the last 30 years due to increased temperature, the decline in upwelling intensity, and large-scale changes in ocean currents. This severely threatens the pelagic fish populations (sardines, horse mackerel, anchovies) shared between these two countries and with Senegal. There is already a northward shift in biomass concentrations, which could considerably affect the Moroccan canning industry. In the Mediterranean, the increase in sea temperature has been more rapid in the eastern and central parts (Egypt, Libya, Tunisia) than in the western part (Algeria, northern Morocco). This trend is continuing and altering the marine environment, leading to a decline in primary productivity in the western part of the Mediterranean basin, which is also experiencing the greatest loss of biodiversity, while the eastern part continues to see an increase in invasive species from the Indian Ocean through the Suez Canal. Changes in ecosystem structure will have a significant impact on fisheries. Pelagic (surface) fish resources will be the most affected, especially the small species (anchovies, sardines) that contribute most to food security (Hidalgo et al, 2018). For bottom species, several species will seek deeper areas and will be less accessible to artisanal fishing, which will have a negative impact on the tourism sector (Egypt, Tunisia).

Coastal and marine ecosystems: North Africa has a long coastline along the Mediterranean Sea (7 000 km), Red Sea (1 500 km), and Atlantic Ocean, which support a variety of coastal and marine ecosystems, including coral reefs and seagrass beds (WB, 2021). These ecosystems provide essential services, such as coastal protection and fishery resources. The Mediterranean Sea and Mauritania Costal line (754 km[29]) are substantial fishing grounds, providing about 60 percent of the region's total fish catch (FAO, 2020). However, coastal, and marine ecosystems in North Africa are under threat from pollution, overfishing, and climate change (UNEP, 2016). According to the World Wildlife Fund[30], only 13 percent of North Africa's coral reefs are in good condition, while 46 percent are in poor condition.

Arable land[31]: Due to the dry climate, most of the cropped area in the region requires irrigation. Soil degradation in rain-fed systems is caused by wind and water erosion, while in irrigated systems, the farming practices themselves are responsible for soil salinity and sodicity[32]. For the Middle East and North Africa, FAO (2018a) has estimated the

[28] Convention on Biological Diversity, https://www.cbd.int/
[29] https://www.worlddata.info/africa/mauritania/index.php
[30] https://www.worldwildlife.org/
[31] Arable land can be plowed to grow crops, including land temporarily under agricultural production, such as meadows, kitchen gardens, pastureland, and market gardens.
[32] Sodicity refers to high concentrations of sodium which causes soils to swell and disperse. A dispersed soil structure loses its integrity, becomes prone to waterlogging, and is usually harder, making it difficult for roots to penetrate.

region's economic cost of land degradation at USD 9 billion annually. Losses from salinity alone across the region are estimated at USD 1 billion annually, or USD 1 600 to USD 2 750 per ha of affected lands.

Livestock and pastures: Livestock grazing is an important activity in North Africa, particularly in the arid and semi-arid areas. Pastures provide a vital source of food and income for many pastoralists in the region (FAO, 2021b). However, overgrazing and land degradation are major challenges, with desertification and loss of biodiversity being the primary consequences. According to the FAO, the total area of grazing land in North Africa in 2020 was approximately 74.9 million hectaress. The livestock sector contributes about six percent to the GDP of the region. Mauritania is self-sufficient in red meat and exports live animals to West Africa and other North African countries. According to the World Bank, the livestock sector is critical to the economy, rural development, and poverty reduction, contributing 14-16 percent of the GDP in Mauritania. The country has a dense network of 120 livestock markets and exports between 100 000 and 150 000 tons of red meat per year[33].

3.1.2 Economic values of natural capital in North Africa

The economic value of natural resources is immense and significantly impacts on North Africa's economies. Although accurate measuring and valuing of natural capital is difficult and often underestimated (Box 3.1), the region holds many of the world's natural resources, both renewables and non-renewables[34]. North Africa has the largest natural gas reserves in Africa. As of 2019, the region accounted for nearly 50 percent of the continent's natural gas reserves[35], with Algeria concentrating the highest amount, some 4.5 trillion cubic meters. The leading North African oil and gas producers are Libya, Algeria, and Egypt, also accounting for a significant share of the continent's oil and gas reserves. Algeria recorded a large natural gas production in 2021, surpassing an output of 100 billion standard cubic meters. Egypt ranked second with 70 billion.

North African countries possess significant mineral resources, including phosphates, iron ore, zinc, lead, and copper[36]. The values of mineral and fossil fuel wealth in Egypt, Mauritania, Morocco, and Tunisia contribute to approximately 26 percent and 15 percent to Africa's mineral and fossil fuel wealth respectively. These figures do not include Algeria and Libya, the largest fossil fuel producers in the region (Figures 3.1 and 3.2). Over the 1995-2017period, the values reached their maximum around 2010-2012 before decreasing, also reflecting the depletion of natural resources. Although coal reserves are also present in North Africa, particularly Morocco and Tunisia, exploitation should be done efficiently to minimize the ecological impact. The natural and cultural assets of the region appeal to different target groups but have not yet been fully exploited. The natural landscapes of the North African countries are spectacular, with their picturesque coastlines, rugged mountain ranges, endless deserts, and paradisal oases. The cultural sphere is similarly impressive, with its historical heritage stretching over millennia. Egypt, Tunisia, and Morocco have succeeded in generating a larger share of the worldwide volume of holidaymakers and visitors.

[33] https://www.worldbank.org/en/country/mauritania/overview
[34] Renewable energy is "energy derived from natural sources that are replenished at a higher rate than consumed". Sunlight and wind, for example, are such sources that are constantly being replenished. On the other hand, fossil fuels - coal, oil, and gas - are non-renewable resources that take hundreds of millions of years to form (see What is renewable energy? | United Nations).
[35] All statistics on oil and natural gas reserves, production and industries are from https://www.statista.com/markets/ unless mentioned otherwise.
[36] https://www.usgs.gov/

Box 3.1 : Value of natural capital compared to other forms of capital

Natural capital refers to the stock of natural resources, including land, air, water, and biodiversity, that provide valuable ecosystem services to human society. These services also include the provision of food, fiber, and timber, regulation of the Earth's climate, purification of water and air, and the pollination of crops.

Despite its importance, natural capital has often been undervalued and underappreciated in economic decision-making, leading to unsustainable use and degradation of natural resources and ecosystems. This is because natural resources are often viewed as "free goods" and are not priced correctly in markets. This has resulted in the loss of many important benefits and services, such as clean air and water, fertile soils, and diverse wildlife. However, the value of natural capital is essential to human well-being and economic development. Natural resources underpin the global economy and support the livelihoods of millions of people worldwide. For example, the global economic value of ecosystem services is estimated to be USD 125 trillion per year, which is more significant than the global GDP.

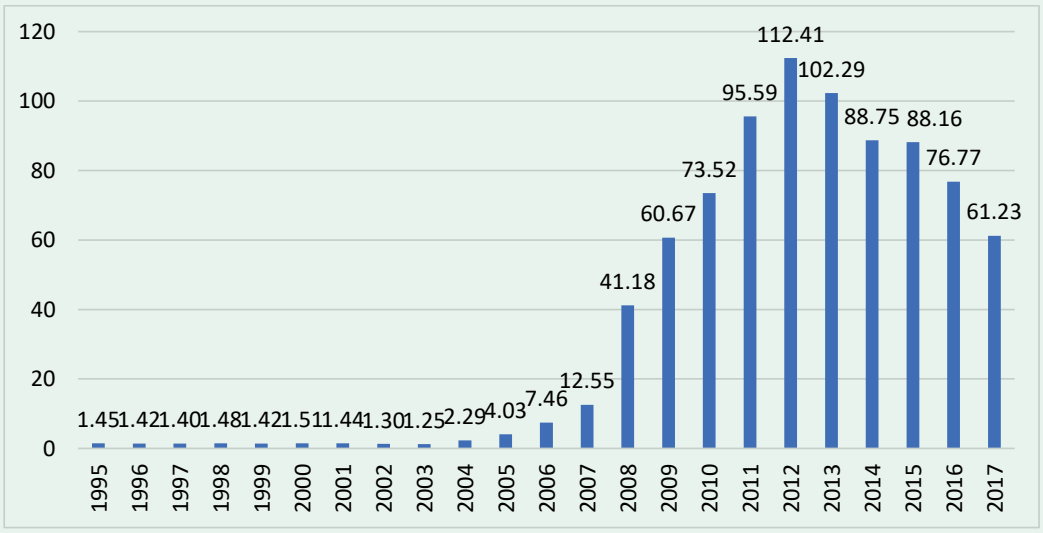
The World Economic Forum (WEF, 2022) highlights the importance of natural capital, stating that "loss of natural capital and ecosystem services is a threat to sustainable development and poses a systemic risk to global financial stability and human well-being". The report emphasizes the need for better management and conservation of natural capital to address global challenges such as climate change, biodiversity loss, and water scarcity. In addition, natural capital depletion and degradation, as well as the loss of biodiversity, can lead to significant economic and social costs, reducing the productivity of agriculture and forestry, increasing the incidence of natural disasters, and leading to the spread of disease.

Therefore, it is crucial to recognize the value of natural capital and incorporate it into economic decision-making. This can be done by implementing policies and regulations that incentivize the sustainable use and management of natural resources, valuing ecosystem services in markets, and incorporating natural capital accounting into national accounting systems. By recognizing the value of natural capital, we ensure that our economic activities are sustainable and contribute to long-term human well-being.

The development of statistical capacity and the adoption of System of Environmental Economic Accounting (SEEA) could alleviate the problem of measuring natural capital.

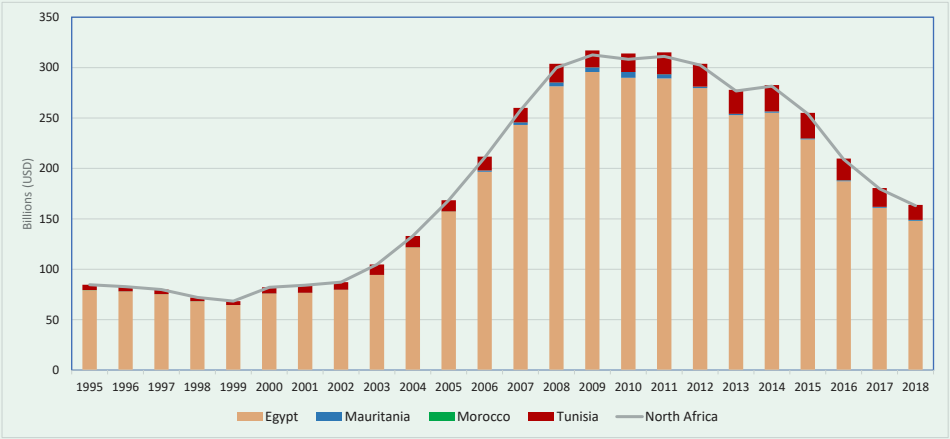
Sources: World Economic Forum, 2022; The Economics of Ecosystems and Biodiversity, 2010; https://www.weforum.org/agenda/2018/10/this-is-why...

Figure 3.1 : Value of mineral wealth of North Africa, 1995-2017 (in billions of constant USD 2018)



Source: AfDB Staff computation using data from the World Bank (2021).
Note: Data for Algeria and Libya are not available.

Figure 3.2 : Value of fossil fuel wealth of North Africa, 1995-2018 (in billions of constant USD 2018)



Source: AfDB Staff computation using data from the World Bank (2021).
Note: Data for Algeria and Libya, the largest oil producers in the region, are not available.

Natural gas is one of Algeria's most abundant natural resources. With a 2.3 trillion cubic metres' capacity as of 2020, the country's proven natural gas reserves are among the largest worldwide (4.5 trillion cubic meters of proven natural gas reserves in 2021)[37]. Amounting to over 12 billion barrels, its proven crude oil reserves are the third-largest in Africa after those of Libya and Nigeria[38]. In 2021, natural gas production stood at around 85 billion standard cubic meters. Algeria is Africa's leading natural gas exporter and the 10th largest global exporter of natural gas, with a total production of 100.8 billion cubic meters in 2021[39]. Algeria has the world's fifth-largest Liquefied Natural Gas (LNG) export capacity; in 2021, its exports increased by more than 28 percent over 2020 representing 16.1 billion cubic meters[40]. Algeria housed Africa's most active oil and natural gas rigs as of March 2023, with 31 rigs active in the country. In 2021, the oil production in Algeria amounted to around 1.35 million barrels per day, a slight increase compared to the previous year. However, between 1998 and 2021, figures decreased by over 100 million barrels per day, peaking at nearly two million barrels per day in 2007. The country exported over USD 23 billion of crude oil and petroleum products in 2021. Moreover, oil rents accounted for around 10 percent of GDP. Algeria's large industrial sector, which contributed around 34 percent to the GDP in 2020, relies on oil and gas resources. The value of natural gas exported from Algeria from January to September 2021 exceeded USD 1.8 billion. The country has significant mineral resources, including iron ore, phosphate, and uranium, which are essential for the country's industrial sector. The Algerian territory is also characterized by abundant renewable energy resources such as solar, wind, hydro, biomass, and geothermal. According to the International Renewable Energy Agency (IRENA, 2020), Algeria had 637 MW of installed renewable energy capacity in 2020, primarily from wind and solar energy.

Egypt's natural capital includes the Nile River, agricultural land, fisheries, and oil and gas reserves. According to the World Bank, Egypt's natural resource rents were valued at 5.5 percent of GDP in 2019. Egypt has also been investing in renewable energy, with a target of generating 42 percent of its electricity from renewable sources by 2035. Egypt had 3 760 MW of installed renewable energy capacity in 2020, primarily from wind and

[37] EIA – Algeria, 2021
[38] https://www.statista.com/statistics/1178147/crude-oil- reserves-in-africa-by-country/
[39] Top 10 Natural Gas Producers by Country (Updated 2023) (investingnews.com)
[40] https://www.ceicdata.com/en/indicator/algeria/natural-gas-exports

solar energy (IRENA, 2020) and significant oil and natural gas reserves, particularly in the offshore Nile Delta region. According to the EIA, Egypt had 3.5 billion barrels of proven oil reserves and 2.2 trillion cubic meters of proven natural gas reserves as of 2021, which are its primary sources of revenue. In January 2023, production of crude oil for Egypt was 556.4 thousand barrels per day[41]. Egypt is Africa's third-largest natural gas producer, following Algeria and Nigeria. Total liquid fuel production in 2021 was an estimated 660 000 barrels per day (b/d); about 561 000 b/d was crude oil and lease condensate. Egypt exported about 1.8 billion cubic meters of LNG in 2020, according to the latest estimates provided by BP's 2021 Statistical Review of World Energy[42]. The economic value of agricultural production in North African countries is estimated at USD 100 billion, with Egypt being the largest agricultural producer in the region (World Bank, 2021).

Libya possesses vast natural resources such as oil, gas, and minerals, which have been the backbone of the country's economy. The country developed a strong oil sector after significant oil discoveries in the late 1950s. In recent years, Libya's economy has remained heavily reliant on the oil industry, which is the primary source of income in the country. As of 2021, Libya's proven reserves amounted to 48.4 billion barrels, the largest on the continent. However, crude oil production in the country fluctuated considerably in recent years. After strong growth, crude oil production fell in 2020 due to the COVID-19 crisis to around 390 000 barrels per day, down from over one million barrels per day in the previous year. Libya's oil refineries had a total capacity of 634 000 barrels per day in 2021, mainly concentrated in the Ras Lanuf refinery[43]. In 2021, Libya was Africa's leading crude oil exporters after Nigeria, with a daily export volume of 1.1 million barrels, accounting for eight percent of the crude oil supply to the European Union. Although to a lesser extent, Libya's economy also profits from the gas sector, as the country is the fourth natural gas producer on the African continent, exporting 3.1 billion cubic meters in 2021. The country's natural gas reserves amounted to around 1.5 trillion cubic meters in 2021. In 2022, Libya's oil production was at 1.211 million barrels per day (b/d), according to the country's National Oil Corporation (NOC)[44], recovering after the blockade was lifted in the middle of July 2022. The crude oil and petroleum products exports from Libya had a value of around USD 27.5 billion in 2021. As of 2020, Libya had the highest oil revenues as a share of GDP in Africa. Revenues corresponded to nearly 53 percent of the country's GDP that year. Mineral fuels, including oil and natural gas, were the leading products exported in 2021, representing over 95 percent of the exports. Libya relies fully on fossil fuels (oil and natural gas) to generate electricity. However, Libya has a significant potential for solar energy; in the coastal regions, the daily average solar radiation on a horizontal plane on an average is 7.1 kWh/m2/day and in the southern region, it is 8.1 kWh/m2/day. According to IRENA (2020), Libya had 4 MW of installed renewable energy capacity in 2020, primarily from solar energy. However, the country's political instability has hindered its renewable energy development.

Mauritania's natural capital includes fisheries, livestock, agricultural land, minerals, and oil and gas reserves. It is a desert country with a total of 1 030 700 km^2, vast expanses of pastoral land, and only 0.5 percent of arable land. The forest accounts for 0.2 percent. The major aquifers include Senegalo-Mauritanian Basin and Taodeni-Tanzerouft Basin. The country's total renewable water resources are 11.4 billion cubic meters. It also has a significant potential for wind and solar energy, with an estimated wind power potential of up to 5 GW and a solar power potential of up to 6 kWh/m2/day. According to IRENA (2020), Mauritania had 21 MW of installed renewable energy capacity in 2020, primarily from wind energy.

[41] Egypt Production of crude oil, 2021-2023 - knoema.com
[42] BP 2021 Statistical Review of World Energy, accessed January 27, 2022.
[43] https://www.statista.com/statistics/1276405/oil-refinery-capacity-in-libya-by-location/
[44] Libya's Oil Production Rebounds To Top 1.2 Million Bpd | OilPrice.com

As of 2017, the total renewable energy capacity in Mauritania amounted to 167 megawatts[45]. Out of a total installed generating capacity of 656 000 kW in 2020, the World Factbook indicated the following electric generation sources, by order of importance: fossil fuels (73.2 percent), hydroelectricity (11.9 percent), solar (8.1 percent) and wind (6.8 percent)[46]. In 2019, the major exports of natural capital include iron ore, fish products, gold, mollusks, and processed crustaceans. The country also exports live animals to Algeria, Libya, Gambia, Guinea Bissau, and Senegal. Mauritania's natural resource rents were valued at 20.7 percent of GDP in 2019. In addition, Mauritania has some natural gas reserves, with 170 billion cubic meters of proven natural gas reserves in 2021.

Morocco has around 75 percent of the world's estimated reserves of phosphates, and the mineral sector accounts for almost 30 percent of exports. Mining accounts for 10 percent of GDP, of which 90 percent derives from phosphates[47]. In 2022, Morocco's phosphate export hit record highs, growing by 43 percent and reaching MAD 115.5 billion (USD 11 billion). However, exports in the first two months of 2023 settled at USD 1 billion, down from USD 1.4 billion in 2022 due to plunging fertilizer prices on the international market[48]. Crude oil production in Morocco remained stable at around 0.03 thousand of b/d in December 2022[49]. Morocco's 2022 olive oil exports showed an 85 percent growth in volume and a 49 percent growth in value compared to 2021. Overall agricultural and agri-food exports exceeded MAD 73.8 million (USD 7.34 million) in November 2022[50]. On the other hand, the existing hydro resources reached 1 770 MW of total capacity installed by December 2021. Total installed capacity from renewable energy sources stands at 4 067 MW, corresponding to 37.1 percent of total installed electrical capacity. Morocco has an installed capacity from wind energy of 1 466 MW, the second largest volume in Africa behind South Africa. The country has an average solar potential of 5 kilowatt hours (kWh) per square meter per day, although this varies geographically. Total installed capacity from solar energy currently stands at 831 MW. Morocco's electricity production in 2021 came from coal (37.1 percent), hydroelectricity (16.1 percent), fuel oil (7.7 percent), natural gas (17.7 percent), wind (13.4 percent), solar (7.6 percent)[51].

Tunisia is known for its diverse range of natural capital resources, including significant forest cover, water resources, and coastal ecosystems. The country is also home to several important protected areas, such as the Ichkeul National Park and the Djerba-Zarzis National Park and has archaeological sites which would enable it to have a more diversified tourism offer. Tunisia has significant agricultural potential with the development of agri-food industries, in the olive oil sector. The country is the world's third largest producer of olive oil in 2021/2022. Tunisia has significant phosphate rock reserves, the country is the world's third largest producer of olive oil in 2021/2022 with an estimated 900 million tons of reserves. The country used to be the world's fifth largest phosphate producer until the 2011 Revolution. Moreover, Tunisia has deposits of oil, natural gas, and other minerals such as iron ore and zinc. The country has been investing in developing its energy sector to increase production and exports.

3.1.3 Non-renewable resources

As indicated above, North Africa holds important reserves of non-renewable resources, such as hydrocarbon, minerals, and metals (Table 3.1).

The value of groundwater resources in North African countries is substantial, and their sustainable management is essential for the region's economic

[45] Mauritania: renewable energy capacity 2017 | Statista
[46] Mauritania - The World Factbook (cia.gov)
[47] The economic context of Morocco - International Trade Portal (lloydsbanktrade.com)
[48] Morocco's Phosphate Exports Drop by 25% in 2023 (moroccoworldnews.com)
[49] Morocco Crude Oil Production - March 2023 Data - 1993-2022 Historical - April Forecast (tradingeconomics.com)
[50] Morocco's Olive Oil Exports Reach Record Levels as Domestic Prices Rise - Olive Oil Times
[51] https://www.trade.gov/country-commercial-guides/morocco-energy

development[52]. North African countries are among the most water-scarce countries in the world, with limited renewable freshwater resources. However, they possess significant non-renewable groundwater reserves that are essential for their agricultural and industrial sectors. North Africa coastal aquifers are exposed to an increase in seawater intrusion and groundwater salinity due to

Table 3.1 : Estimated reserves of major non-renewable resources as of 2020

Country	Resources	Estimated reserves
Algeria	Oil	12.2 billion barrels
	Natural gas	4.5 trillion cubic meters
	Coal	2.5 billion tons
	Iron ore	3 billion tons
	Phosphate	2 billion
	Uranium	26 000 tons
Egypt	Oil	4.4 billion barrels
	Natural gas	2.2 trillion cubic meters
	Iron ore	690 million tons
	Phosphate	1.6 billion tons
	Manganese	5 million ton
	Asbestos	7 million tons
Libya	Oil	48.4 billion barrels
	Natural gas	1.5 trillion cubic meters
	Iron ore	1.5 billion tons
	Gypsum	1 billion tons
	Salt	5 billion tons
	Silica	600 million tons
Mauritania	Iron ore	2 billion tons
	Copper	6 million tons
	Gold	10 million tons
	Natural gas	28.32 billion cubic meters
	Oil	20 million barrels
Morocco	Phosphate	50 billion tons
	Lead	1.1 million tons
	Zinc	2.3 million tons
	Copper	33 million tons
	Cobalt	1.3 million tons
Tunisia	Oil	425 million barrels
	Natural gas	2.3 trillion cubic meters
	Iron ore	400 million tons
	Phosphate	5 billion tons
	Zinc	500 000 tons
	Salt	1.3 billion tons

Source: US Energy Information Administration, https://www.eia.gov/.
Note: These figures may not be consistent across different references. Additionally, there may be other non-renewable resources found in each of these countries, but the ones listed are some of the most significant ones.

"North African countries are among the most water-scarce countries in the world, with limited renewable freshwater resources"

[52] Although water is a renewable resource due to the hydrological cycle, non-renewable water resources are those not replenished or difficult to replenished. This includes the fossil waters and the overexploited groundwater aquifers and surface water like rivers and lakes (see https://www.unescwa.org/).

sea level rise, which may contribute to alter already scarce freshwater resources including drinking water and irrigation supplies. According to the FAO (2021), agriculture accounts for approximately 80 percent of water use in North African countries. Sustainable management of groundwater resources is essential for ensuring the long-term sustainability of the agricultural sector in North African countries.

3.1.4 Renewable resources

North African countries possess a significant amount of natural capital and renewable energy resources. In addition to the stock of natural resources such as forests, water, and biodiversity, North Africa has also abundant solar and wind resources, particularly in the Sahara Desert, which can be harnessed to provide clean energy (Table 3.2). The natural capital in North Africa is shaped by the region's varied topography, ranging from arid deserts to fertile coastal plains and high mountains. Egypt, Mauritania, Morocco, and Tunisia have significantly invested in renewable energy projects, such as solar power plants and wind farms. In 2020, Morocco had a total installed renewable energy capacity of 3 631 MW, while Tunisia had a total installed capacity of 472 MW. Generally, widespread access to electricity in North Africa is very high (99 percent). Mauritania is an exception, but it recorded substantial progress in the last decade, with access rising to 47 percent in 2020 from 34 percent in 2010 (World Bank, 2019). North Africa's natural wealth presents both opportunities and challenges for sustainable development. While oil and gas resources have provided significant revenue, they also come with environmental and social costs.

North Africa has several biodiversity hotspots, including the Mediterranean Basin and the Sahara-Sahel region. High plant and animal diversity levels and unique and endangered species characterize these hotspots. It is the home of plant species that are relatives of food and fodder crops and hundreds of traditional medicinal plants. The region is the geographic transition between the warm tropics in the South and the temperate zone in the North, forming an important part of the routes for migratory birds. It is also a region of rich cultural and natural heritage (which influences the people's daily lives) and one of the historical sources of civilization. These areas are essential for conservation and ecotourism, offering opportunities for wildlife viewing and nature photography. The Mediterranean Basin is one of the world's 34 biodiversity hotspots, known for its high plant and animal diversity levels, including over 22,000 plant species. The Sahara-Sahel region is a biodiversity hotspot comprising various ecosystems such as desert, savannah, and wetland. It is home to unique and endangered species such as the Saharan cheetah, the addax antelope, and the dama gazelle.

Renewable resources are critical for the sustainability and well-being of North Africa, but unsustainable practices and overexploitation are major threats to these resources. Therefore, it is important to adopt policies and practices that promote the sustainable use and management of these resources to ensure their continued availability for future generations. For instance, the value of captured fisheries has been stagnating around 5.5 billion annually in North Africa, reflecting overfishing issues (Figure 3.3).

3.1.5 Tourism industry in North Africa

The landscapes[53] of North Africa offer a wealth of opportunities for ecotourism, beach tourism, footprint of air travel, and conservation. The tourism sector in North Africa offers a diverse range of attractions, including cultural and historical sites, beaches, desert landscapes, wildlife, and adventure tourism activities. Countries such as Egypt, Morocco, Tunisia, and Algeria are among the most visited destinations in Africa, attracting millions of tourists from all over the world. The following landscapes provide important ecosystem services and cultural and recreational opportunities for visitors.

[53] Paul A. Schrier, in Encyclopedia Britannica; John S. L. Lambrick, 2018; Andrew Goudie and Heather Viles; Azzouz Ousfane and Ahmed El Ouahabi, 2018

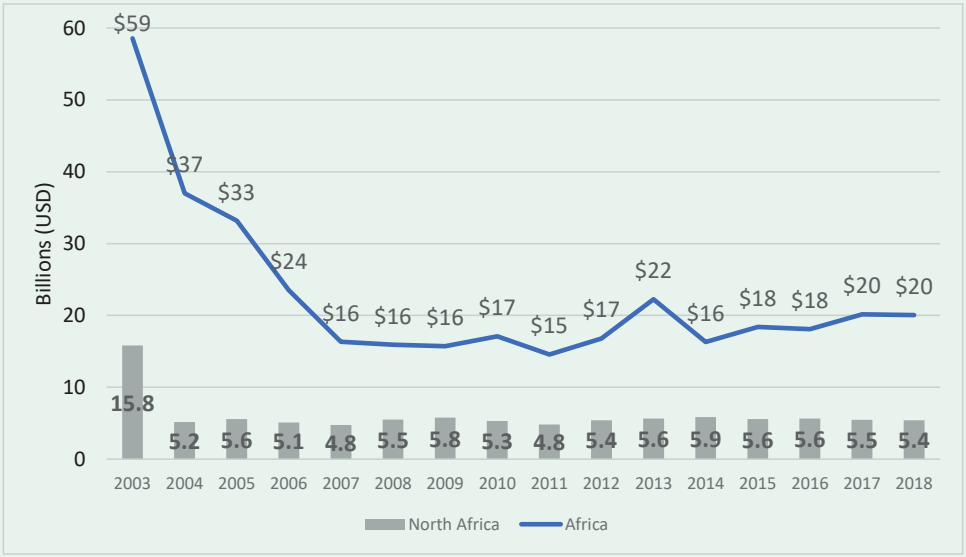
Table 3.2 : Overview of renewable natural capital in North African countries

Country	Algeria	Egypt	Libya	Mauritania	Morocco	Tunisia
Forest land 2020 (1000 hectares)	1 949	45	217	313	5 742	703
Renewable water resources per capita (m^3 in 2017)	180	20	216	19	753	303
Fisheries Production (metric tons in 2020)	86 901	2 010 579	31 637	678 425	1 399 151	126 739
Mammal species (2021)	48	36	29	21	55	28
Coral reefs (2021)	N/A	93% in poor condition	N/A	N/A	35% in poor condition	70% in poor condition
Arable land (1000 hectares)	7 505	3 365	1 720	400	7 649	2 595
Agriculture (1000 hectaress)	41 359	3 971	15 350	39 661	30 382	9 731
Pastures (hectaress)	25 235	16 687	2 934	64 283	23 569	2 613
Renewable energy potential	22 000 MW	61 000 MW	4 300 MW	30 000 MW	17 860 MW	2 000 MW
Installed renewable energy capacity (MW in 2020)	343 MW	7 136 MW	N/A	17 MW	3 631 MW	472 MW
(% of potential)	1.6%	12%		0.06%	20%	24%

Sources: Data from EIA (https://www.eia.gov/), FAO (2023), USGS (https://www.usgs.gov/), AfDB Statistics Department. Tunisia - Electrical Power Systems and Renewable Energy (trade.gov). Data for renewable energy potential are based on the following sources: Algeria https://www.ispionline.it/en/publication/dependence-diversification-algerias-renewable-energy-potential-32910; According to the 2035 strategy, Egypt will produce 61,000MW of renewable energy, 31,000MW of solar power, 12,000MW of concentrated solar power, and 18,000MW of wind power; Libya (Omar Ahmed Mohamed and Syed Hasan Masood 2018 IOP Conf. Ser.: Mater. Sci. Eng. 377 012136), Mauritania Mauritania - Renewable Energy (trade.gov), Morocco (4560 MW solar, 4200 MW wind, and 3100 MW hydropower and plan to have 2000 MW of wind, 2000 MW of solar, and 2000 MW of hydropower plants, see Azeroual, M., El Makrini, A., El Moussaoui, H., et al., 2018) and Tunisia Tunisia - Electrical Power Systems and Renewable Energy (trade.gov).

Note: These figures may not represent the full extent of each country's renewable resources.
N/A means not available.
Agricultural lands consist of (1) arable land, (2) permanent crops, and (3) pastures and hayfields.

Figure 3.3 : Value of capture fisheries in North Africa (billions of constant USD 2018)



Source: AfDB Staff computation using data from the World Bank (2021).
Note: Data for Algeria and Libya, the largest oil producers in the region, are not available.

"The tourism sector in North Africa offers a diverse range of attractions, including cultural and historical sites, beaches, desert landscapes, wildlife, and adventure tourism activities."

The Sahara desert is the largest hot desert in the world, covering over 3.6 million square miles, much of North Africa. Despite its harsh and inhospitable conditions, the Sahara is home to various wildlife, including desert foxes, fennecs, gazelles, and even camels. The Sahara offers fennecs opportunities for ecotourism and cultural tourism, including camel treks and desert camping, as well as visits to traditional Berber villages and historical sites. The Tassili n'Ajjer National Park in Algeria is a UNESCO World Heritage Site known for its prehistoric rock art and dramatic rock formations.

The Atlas Mountains run over 2 500 km through Morocco, Algeria, and Tunisia, providing a dramatic landscape of peaks and valleys and offering hiking, skiing, trekking opportunities, and wildlife watching, as well as visits to traditional Berber villages and cultural sites. The Toubkal National Park in Morocco is home to the highest peak in North Africa, Mount Toubkal (4 167 meters), as well as a variety of wildlife, including Barbary macaques and golden eagles.

The Mediterranean Coastline of North Africa stretches over 3,000 km and offers some of the best beaches in the world and popular tourist destinations for swimming, sunbathing, and water sports such as scuba diving and snorkeling. For instance, the Ras Mohammed National Park in Egypt is a marine park known for its coral reefs and diverse marine life, including sharks, dolphins, and sea turtles.

The tourism sector in North Africa is a vital part of the region's economy, contributing significantly to employment, foreign exchange earnings, and economic growth. The sector has seen significant growth over the years, with Egypt, Morocco, and Tunisia leading in terms of tourism arrivals and revenue. According to the World Tourism Organization (UNWTO, 2021), North Africa received over 29 million international tourist arrivals in 2019, generating over USD 26 billion in revenue (Table 3.3). The tourism sector in Egypt is a major employer, providing jobs for approximately 12 percent of the country's workforce. In Morocco,

it accounts for 7 percent of GDP and employs approximately 2.5 million people. The tourism sector in Algeria is still developing, with the government taking steps to promote the country's natural and cultural attractions.

Despite the performance in the region's tourism sector, it has also faced challenges, such as political instability, security concerns, and the impact of the COVID-19 pandemic. The region has also had to adapt to changing tourism trends, including a growing interest in sustainable and responsible tourism. In recent years, there has been a focus on promoting intra-regional tourism within North Africa, with initiatives aimed at encouraging tourists to visit multiple countries in the region. The region's unique attractions, cultural heritage, and natural beauty continue to make it an appealing destination for visitors from around the world. The development of regional tourism infrastructure and the easing of visa regulations for African nationals have also been identified as potential drivers of tourism growth in the region.

3.2 Increasing natural capital's contribution to climate finance and green growth

Harnessing natural capital can contribute to North Africa's development while ensuring its sustainable management. This can include promoting sustainable agriculture, developing renewable energy, strengthening natural resource governance, investing in green infrastructure, and promoting sustainable tourism practices. These approaches can help ensure the sustainable use of natural resources, promote economic growth, and contribute to equitable development in the region.

Table 3.3 : Indicators of the tourism industry in North Africa

Country	International Tourist Arrivals (2019)	Tourism Revenue (2019)	Employment in Tourism Sector	Top Tourist Attractions
Algeria	2.4 million	USD 1.2 billion	Over 500 000 jobs	Tassili n'Ajjer National Park, Tipaza Roman Ruins, Algiers Casbah
Egypt	13.6 million	USD 13.0 billion	Over 3 million jobs	Ocean and coastal beaches, mountains, desert landscapes, Red Sea resorts
Libya	91 000	USD 23 million	N/A	Leptis Magna, Sabratha, Ghadames
Mauritania	99 000	USD 40 million	Over 20 000 jobs	Banc d'Arguin National Park, Atar, Terjit Oasis
Morocco	12.9 million	USD 8.1 billion	Over 2 million jobs	Ocean and coastal beaches, mountains, desert landscapes
Tunisia	9.4 million	USD 1.3 billion	Over 200 000 jobs	Carthage, Sidi Bou Said, El Djem Amphitheater

Source: Data from World Tourism Organization, https://www.unwto.org/tourism-statistics

3.2.1 Opportunities in non-renewable resources

The potential for economic development through significant non-renewable resources varies depending on the political and economic conditions of each country. Oil and gas reserves are particularly significant in North Africa, with Algeria, Libya, and Egypt being major producers and exporters (Table 3.4). These countries have the potential to increase production and exports, particularly as demand for energy continues to grow globally. In addition, the region has potential to attract foreign investment in the oil and gas sectors, which could lead to job creation and economic growth. However, the volatility of global oil prices and political instability in some of these countries can pose risks to the industry in addition to the risk for stranded assets given the agreed rapid reduction of greenhouse gas emissions for the signatories of the Paris Agreement.

The development of the mining sector in North Africa is often hindered by regulatory and governance challenges, as well as limited infrastructure and technical expertise. North Africa is rich in mineral resources, including phosphates, iron, zinc, lead, and copper, and there are opportunities for further exploration and extraction in the region. Based on the significant phosphate and iron deposits, Morocco has an important lithium-ion battery manufacturing potential (Box 3.5). Coal reserves are also present in North Africa, particularly in Morocco and Tunisia. However, the demand for coal is declining globally due to concerns about climate change and the transition towards renewable energy sources. Therefore, investment in coal extraction and use may not be a viable long-term option.

Mauritania will become an exporter of Liquefied Natural Gas (LNG), with the commissioning of phase I of the Grand Tortue Ahmeyim (GTA) gas project with an estimated production capacity of 2.45 million tons per year. According to the financial models, revenues from the GTA project would provide additional fiscal space of at least 0.5 percent of GDP from 2024. During the initial production years, the GTA project is expected to provide the government between USD 32 million and 50 million annually and between USD 60-150 million once investment costs are recovered. Eventually, phases 2 and 3 of the GTA project which aim at increasing production to 9.8 million tons per year, would significantly increase annual revenues to USD 343-737 million. Thus, gas resources provide the opportunity to initiate the transition to electricity generation from gas, reducing carbon emissions by 40 percent per year. However, the prospects of an abundant gas windfall raise concerns about the country's ability to manage these resources effectively, revive its economy and ensure its energy transition, and avoid the curse of natural resources management that Mauritania experienced in the past.

3.2.2 Opportunities in renewable resources

Renewable resources such as fisheries, forestry, agriculture, green hydrogen, and pastures play an essential role in the economies of North African countries, particularly in providing employment and contributing to GDP. Here is an overview of some of the opportunities:

Green hydrogen: It is the most environmentally friendly fuel, suitable for direct combustion and used in fuel cells; however, its production is currently not as developed as other hydrogen production technologies. The potential of the Sahara Desert in North Africa to generate large amounts of renewable energy thanks to its dry climate and vast expanses of land has long been touted. For years, it has been considered as a potential source of solar energy that could satisfy a sizable chunk of European energy demands.

"The potential of the Sahara Desert in North Africa to generate large amounts of renewable energy thanks to its dry climate and vast expanses of land has long been touted. For years, it has been considered as a potential source of solar energy that could satisfy a sizable chunk of European energy demands."

Table 3.4 : Overview of non-renewable natural resources in North African countries

Country	Resource	Description
Algeria	Oil and gas	Third-largest oil reserves in Africa; sixth-largest gas producer in the world
	Minerals	Significant reserves of iron, gold, phosphate, zinc, lead, and uranium; mining sector contributed 1.2 percent to GDP in 2019
Egypt	Oil and gas	Largest non-OPEC oil producer in Africa; significant gas reserves
	Minerals	Significant deposits of gold, iron, phosphate, and other minerals; mining sector contributed 0.5 percent to GDP in 2019
Libya	Oil and gas	Largest oil reserves in Africa; significant gas reserves
	Minerals	Significant reserves of iron ore, lead, zinc, and other minerals
Mauritania	Oil and gas	Significant proven natural gas reserves
	Minerals	Significant deposits of iron ore, gold, copper, and other minerals; mining sector contributed 14.5 percent to GDP in 2019
Morocco	Phosphate	Largest phosphate reserves in the world with 70 percent of global phosphate rock reserves; second-largest exporter after China
	Minerals	Significant reserves of lead, zinc, copper, and silver; mining sector contributed 6.3 percent to GDP in 2019
Tunisia	Phosphate	Significant phosphate reserves, as well as smaller reserves of iron ore, lead, zinc, and other minerals. However, the phosphate production in Tunisia has been strongly affected since the Revolution given the country used to be one of the largest producers globally.
	Oil and gas	Potential for oil and gas exploration
	Minerals	Mining sector contributed 0.6 percent to GDP in 2019

Source: https://oxfordbusinessgroup.com/

Box 3.2 : Increased efficiency in gas exploitation

Efficiency in gas exploitation refers to the ability to extract the maximum amount of natural gas from a reservoir while minimizing waste, cost, and environmental impact such as greenhouse gas emissions, water usage, and land use. One approach is to use advanced exploration techniques, such as seismic imaging and 3D modeling, to identify and locate gas reserves more accurately. Another strategy is to use enhanced recovery methods, such as hydraulic fracturing (fracking) and carbon dioxide injection, to increase the pressure and flow of gas in the reservoir. Optimizing drilling techniques, using advanced equipment and sensors to monitor and control the extraction process, and improving pipeline infrastructure can also improve efficiency in gas exploitation. Investing in renewable energy can also indirectly enhance efficiency by reducing the overall demand for gas and making it more sustainable.

Source: IEA, 2022; WEF, 2019

Box 3.3 : Managing gas revenues efficiently in Mauritania

The rapid development of extractive industries in 2007-2015 raised Mauritania to the rank of lower-middle-income country, leading to a quick decline in poverty from 55.3 percent in 2008 to 41.2 percent in 2019. However, the country has not registered the expected results in terms of human capital and efficient allocation of public finances as indicated by a 2018 human capital index of 0.37 on a scale of 0 to 1. The years of the mining boom resulted in unproductive public spending and a waste of resources, leading to high debt levels at 58.8 percent of GDP in 2015 and reducing fiscal buffers.

Mauritania has a strong interest in adopting a prudent fiscal policy to manage gas revenues. To do so, the country should:

- Revise the medium-term fiscal framework to reduce its volatility linked to extractive resources. The fiscal policy should be anchored on the budget balance excluding extractive revenues, for enhanced management and an effective response to external shocks.
- Strengthen the debt management framework to prevent the risk of indebtedness, by setting a debt threshold. The debt policy should limit borrowing against future production or future income gas companies that could jeopardize debt sustainability.
- Invest gas revenues productively and sustainably, by adopting the principle of intergenerational equity and distributing gas revenues between the annual budget and savings for future generations. The country should put in place an investment policy to redirect the benefits of the gas sector to boost competitiveness in non-extractive sectors (agriculture, livestock, and fisheries), develop local economies, fill the infrastructure gap, reduce regional development disparities, and strengthen human capital.
- Reinforce the governance of the National Hydrocarbons Revenue Fund (FNRH), its transparency and accountability mechanisms as an intergenerational fund.
- As a member of the Extractive Industries Transparency Initiative (EITI), Mauritania should apply the global standard of good governance in the oil, gas, and mineral sectors.
- Plan and promote the development of required local skills: The development of the gas and energy sector, including the renewable energy sub-sectors, will require trained professionals and national service companies.

Box 3.4 : Morocco's potential as a global producer of battery for electric vehicles

Morocco's massive phosphate reserves are a critical factor in its transformation into a global-scale, Electric Vehicles (EV) battery production hub. A growing trend in electric passenger cars is to replace Nickel Manganese Cobalt (NMC) Li-ion batteries with Lithium Iron Phosphate (LFP) batteries, substituting expensive cobalt and nickel as well as manganese for relatively cheaper phosphate and iron. While not providing the same long driving ranges as NMC batteries, phosphate-based LFP batteries are less expensive, safer, and last longer than their cobalt-based counterparts. In 2020, Office Chérifien des Phosphates (OCP) mining operations produced 40.7 million tons of phosphate and exported 10.3 million tons of raw materials. From its phosphate supplies, OCP Group manufactured 7.1 million tons of phosphoric acid, exporting 1.9 million tons of the key input. Morocco will need to expand its phosphate and phosphoric acid production to make LFP EV batteries. By using phosphate and iron — Morocco is also a net exporter of iron ore — to make LFP batteries, instead of nickel, manganese, and cobalt for its NMC counterpart, Morocco could enjoy a cost advantage up to 70 percent per kilogram.

Source: https://www.mei.edu/publications/moroccos-green-mobility-revolution-geo-economic-factors-driving-its-rise-electric

"The potential of the Sahara Desert in North Africa to generate large amounts of renewable energy thanks to its dry climate and vast expanses of land has long been touted. For years, it has been considered as a potential source of solar energy that could satisfy a sizable chunk of European energy demands."

In early 2020, Desertec Industrial Initiative (DII) launched the MENA Hydrogen Alliance to help set up energy projects in the Middle East and North Africa region that produce hydrogen for export[54]. The resources in North Africa are vast, only eight percent of the Sahara Desert covered with solar panels is required to produce 155 000 TWh, all the energy the world requires (Van Wijk et al., 2017). Exporting green hydrogen could provide a new source of revenue for North African countries while also supporting climate action. IRENA (2020) estimates that North Africa could produce up to 3 000 terawatt hours (TWh) of green hydrogen annually by 2050, which could meet a significant portion of the region's energy needs and support regional energy integration and export. North African countries have significant potential for producing hydrogen and "green" hydrogen, particularly through fossil fuel mining and using renewable energy sources[55].

Fisheries: North African countries have access to the Mediterranean Sea, the Red Sea, and the Atlantic Ocean, providing significant opportunities for fishing. With the increasing demand for seafood, there is an opportunity for the region to invest in aquaculture and sustainable fishing practices to meet the demand for seafood and create employment opportunities. The opportunities include developing marine aquaculture to reduce pressure on wild fish stocks and increase production, implementing sustainable fishing practices and enforcing regulations to prevent overfishing, investing in fish processing and value addition to increase export revenue, and encouraging the private sector participation in the sector through public-private partnerships.

Forestry: The forestry sector in North Africa is relatively small, but it still provides important economic opportunities for the region. Particularly in Morocco and Algeria, there are opportunities for sustainable management of timber, non-timber forest production such as medicinal plants and mushrooms, and other ecosystem services. The forestry sector can also contribute to mitigate climate change by sequestering carbon in forests. The sector contributes to rural development and employment and provides wood products for domestic and export markets. The overall opportunities may include but are not limited to, promoting afforestation and reforestation to increase forest cover and improve ecosystem services, developing sustainable forest management practices and certification systems to ensure the conservation of biodiversity and sustainable use of forest resources, encouraging the production and trade of non-wood forest products such as medicinal plants, aromatic plants, and resin, and developing ecotourism around forest areas to provide additional income for local communities.

Agriculture: North Africa has a diverse range of agro-climatic zones, allowing for a wide range of crops to be grown (cereals, fruits, vegetables, and olive oil). There is an opportunity for the region to invest in sustainable agriculture practices such as precision farming, conservation agriculture, and organic farming to increase productivity and reduce environmental impacts. In general, the opportunities in the agricultural sector may include promoting sustainable practices to increase agricultural productivity and resilience to climate change, developing value chains and agribusinesses to increase the value-added to agricultural products and create employment opportunities, promoting the use of renewable energy sources in agriculture, such as solar-powered irrigation, and developing organic agriculture to access premium markets and reduce the use of chemical inputs as well as water scarcity.

Pastures: The pastoral sector in North Africa has a long history, particularly in the semi-arid and arid regions. The region has large areas of grazing land, which can be sustainably managed

[54] Green Hydrogen: The new scramble for North Africa | Climate Crisis | Al Jazeera
[55] https://www.sciencedirect.com/topics/engineering/renewable-energy-source

to support livestock production. According to the FAO (2018), the total pasture area in North Africa was around 160 million hectaress in 2018. There is an opportunity to invest in improved grazing management practices, such as rotational grazing and improved forage production, to increase productivity and reduce the environmental impact of livestock production. The sector provides livelihoods for many rural communities and has the potential to produce meat, dairy, and other livestock products.

Investing in renewable resources in North Africa presents an opportunity for sustainable economic growth, job creation, and environmental protection. However, to realize these opportunities, there is a need for policies and investments that support sustainable management practices and ensure that the benefits of resource use are equitably distributed. There are also challenges, such as water scarcity, climate change, and environmental degradation that need to be addressed to ensure the long-term viability of these sectors.

3.2.3 Opportunities in resource conservation

North Africa presents several opportunities for resource conservation in various sectors, including land remediation and rehabilitation, sustainable tourism, and carbon sequestration. However, the success of resource conservation initiatives in North African countries will depend on effective policies, investments, and partnerships between governments, the private sector, and civil society.

Water conservation, energy efficiency, and sustainable agriculture are critical areas that can lead to resource conservation in the region. Water resources are a significant concern in North African countries due to the region's arid climate and water scarcity, population growth and increasing demand for water. However, there are significant opportunities for water conservation in the region. For example, improving irrigation efficiency can reduce water consumption by up to 50 percent (FAO, 2018). Similarly, rainwater harvesting, desalination, and wastewater reuse can provide alternative sources of water and reduce reliance on groundwater. Energy efficiency is another critical area for resource conservation. The energy sector in North Africa is heavily reliant on fossil fuels, which contribute to greenhouse gas emissions and air pollution. Promoting energy efficiency measures such as energy-efficient buildings, appliances, and transportation can reduce energy demand and lower carbon emissions. For example, implementing energy-efficient building codes in Tunisia could reduce energy consumption in buildings by up to 50 percent (World Bank, 2017). The agricultural sector in North African countries is the largest consumer of water and a significant contributor to deforestation and soil erosion. Sustainable agriculture practices, such as conservation agriculture, agroforestry, and crop rotation, can increase productivity while conserving natural resources. For instance, adopting conservation agriculture in Tunisia has led to an increase in yields by up to 30 percent while reducing water use by up to 50 percent (FAO, 2020).

North African countries can encourage sustainable development and mitigate the impact of climate change by promoting environmentally friendly practices and investing in resource conservation. Here are some examples of opportunities for resource conservation in each sector in North African countries:

Land remediation and rehabilitation: North Africa has vast areas of degraded land due to overgrazing, soil erosion, and deforestation. Therefore, land remediation and rehabilitation can be a significant opportunity in the region. Some examples of activities that can be carried out include afforestation, soil conservation, and land

reclamation for agricultural purposes. Additionally, rehabilitating abandoned mines and quarries can create job opportunities and promote environmental sustainability. According to the UNEP (2019), North Africa has approximately 780 000 hectaress of degraded land. Land degradation costs the region about 3.5 percent of its GDP annually.

Sustainable tourism can be an opportunity for resource conservation through environmentally friendly practices, such as reducing waste, conserving water, and using renewable energy sources. This can help reduce the environmental impact of tourism and create jobs in the tourism sector.

Carbon sequestration involves capturing and storing carbon dioxide from the atmosphere in trees, plants, and soil. North Africa has vast areas of arid and semi-arid land, which can be used for carbon sequestration. Some activities that can be carried out include reforestation, afforestation, and agroforestry.

Also, Carbon capture and storage (CCS) technologies can also be used to capture and store carbon dioxide from industrial processes.

3.2.4 Other opportunities

Many opportunities to design policy instruments and implement sustainable practices can help to address environmental and sustainability challenges and support economic development in North Africa.

Designing policy instruments can encourage sustainable practices and investments in sustainable development projects and discourage harmful activities. For example, governments can provide tax incentives or subsidies to encourage the adoption of renewable energy technologies, sustainable agriculture, waste management practices or implement carbon pricing policies for emissions reductions. For instance, Morocco has launched "Generation Green 2020-2030" for the green development of the agricultural sector [56].

Table 3.5 : Opportunities in resource conservation in North African countries

Country	Resource Conservation Opportunity	Description
Algeria	Land Remediation/Rehabilitation	The government has allocated USD 78 million to rehabilitate 6.8 million hectaress of degraded land.
	Sustainable Tourism	Algeria has 7 UNESCO World Heritage Sites and a diverse range of natural and cultural attractions.
	Carbon Sequestration	Algeria's forestry sector has the potential to sequester 22 million metric tons of CO2 annually.
Egypt	Land Remediation/Rehabilitation	The government aims to reclaim 1.5 million hectaress of degraded land by 2022.
	Sustainable Tourism	Egypt's tourism industry is a major contributor to the economy, with a focus on sustainable tourism initiatives.
	Carbon Sequestration	Egypt's forestry sector has the potential to sequester up to 16 million metric tons of CO2 annually.

[56] Generation Green 2020-2030 | Ministère de l'agriculture

Libya	Land Remediation/Rehabilitation	The Libyan government has launched a project to reclaim 10 000 hectaress of degraded land in the northwestern region.
	Sustainable Tourism	Libya's tourism industry has great potential, with diverse landscapes and historical sites, but has been impacted by political instability in recent years.
	Carbon Sequestration	Libya's forestry sector has the potential to sequester up to 10 million metric tons of CO2 annually.
Mauritania	Land Remediation/Rehabilitation	The government has launched a project to rehabilitate 50 000 hectaress of degraded land in the southern part of the country.
	Sustainable Tourism	Mauritania has unique natural and cultural attractions, but its tourism industry needs to be developed more.
	Carbon Sequestration	Mauritania's forestry sector has the potential to sequester up to 5 million metric tons of CO2 annually.
Morocco	Land Remediation/Rehabilitation	The government aims to rehabilitate 1 million hectaress of degraded land by 2030.
	Sustainable Tourism	Morocco has a thriving tourism industry, with a focus on sustainable tourism initiatives.
	Carbon Sequestration	Morocco's forestry sector has the potential to sequester up to 17 million metric tons of CO2 annually.
Tunisia	Land Remediation/Rehabilitation	The government has launched a project to rehabilitate 300 000 hectaress of degraded land by 2030.
	Sustainable Tourism	Tunisia has diverse natural and cultural attractions, with a growing focus on sustainable tourism initiatives.
	Carbon Sequestration	Tunisia's forestry sector has the potential to sequester up to 5 million metric tons of CO2 annually.

Source: World Bank, FAO

Box 3.5 Potential of sustainable tourism as a driver of incomes and conservation

Sustainable tourism has the potential to be a powerful driver of economic growth, while also promoting conservation efforts to ensure that economic benefits are generated without causing damage to the environment. In some North African countries, tourism is one of the largest sources of foreign exchange earnings and a major source of employment. By implementing sustainable tourism practices, destinations can attract environmentally conscious travelers willing to pay a premium for experiences that align with their values. This can help diversify the local economy and provide a source of income for communities.

For instance, in Costa Rica, sustainable tourism has become a significant economic driver, generating over USD 3 billion in revenue and supporting over 200 000 jobs. The country has made significant investments in conservation, with over a quarter of its land designated as protected areas. In Kenya, the Maasai Mara National Reserve has become a popular destination for eco-tourists. The reserve has been able to preserve its natural resources and wildlife populations while providing economic benefits to local communities – generating over USD 119 million in tourism revenue. According to the Rainforest Alliance, eco-tourism generates USD 77 billion in revenue annually and supports over 1.6 million jobs worldwide.

By promoting tourism activities that support conservation efforts, local communities can develop new income streams that are less destructive to the environment over the long term while also raising awareness about the importance of conservation and environmental protection. By engaging travelers in educational activities and promoting sustainable practices, tourism operators can encourage visitors to build a greater appreciation for the natural world, and support conservation efforts. In addition, leakages abroad of tourism revenues are notorious, increasing the revenues that stay in the country, and particularly the taxable part, can boost government revenues and be used for other investments.

However, sustainable tourism must ensure that it genuinely supports conservation and benefits local communities. Tourism operators must work closely with residents to develop tourism activities that are appropriate for the local environment and culture and that respect the rights and needs of the local community. In addition, sustainable tourism must be supported by effective policies and regulations that help to prevent negative impacts on the environment and ensure that tourism activities are conducted in a responsible and sustainable manner. Overall, sustainable tourism must be implemented responsibly and sustainably to ensure that it delivers on these promises and generates economic benefits that are both sustainable and equitable for everyone.

Source: UNWTO, 2021; Maasai Mara Wildlife Conservancies Association, https://maraconservancies.org/; Costa Rica Tourism Board, http://www.ict.go.cr/en/; Rainforest Alliance, https://www.rainforest-alliance.org/.

Debt-for-nature swaps allow countries to exchange their debt mostly with bilateral creditors for commitments to protect biodiversity or invest in sustainable development projects. It can help relieve debt burdens while also generating resources for environmental conservation and sustainable economic growth. This can include investments in reforestation, sustainable agriculture, and ecotourism. However, these swaps require a strong commitment from all parties involved and significant coordination and negotiation between governments, international organizations, and creditors (Box 3.6). In 2018, Tunisia signed a debt-for-nature swap, in which the United States forgave USD 4 million of Tunisia's debt in exchange for its commitment to protect its forests and improve its natural resource management.

Re-assessment of climate adaptation programs is crucial to ensure they are effective, sustainable and address the needs of vulnerable communities. Countries can invest in drought-resistant crops and water conservation technologies or implement programs that incentivize sustainable land use and soil conservation. They can provide training and resources to help communities adapt to changing environmental conditions or developing new infrastructure to protect against natural disasters. However, re-assessment requires significant resources and political will.

3.3 Opportunities from international agreements and cooperative approaches

International agreements and cooperative approaches provide numerous opportunities for North African countries to collaborate and address global environmental challenges. For instance, the Paris Agreement[57] presents significant opportunities for countries to collaborate on climate action and access financial and technical support, particularly in renewable energy and energy efficiency sectors (UNEP, 2017). International cooperation enables countries to share best practices and learn from each other's experiences.

Cooperative approaches, such as carbon pricing, emissions trading, and offsetting, provide additional opportunities for countries to reduce greenhouse gas emissions. Emissions trading allows countries to buy and sell carbon credits, creating a market for emissions reductions, renewable energy projects or energy

[57] The Paris Agreement is an international agreement under the United Nations Framework Convention on Climate Change (UNFCCC). The agreement was adopted in 2015 and entered into force in 2016, with the aim of limiting global warming to well below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 degrees Celsius.

Box 3.6 : Debt-for-climate swaps

Debt-for-climate swaps are a relatively new concept that involves canceling or restructuring a portion of a debtor country's debt in exchange for its commitment to invest in climate and environmental initiatives. Debt-for-climate swaps offer several benefits. First, they provide debt relief for developing countries, allowing them to allocate resources towards climate action instead of debt repayment. Second, they incentivize countries to act on climate change, as debt relief is tied to their commitment to reducing greenhouse gas emissions. Finally, debt-for-climate swaps mobilize new resources for climate action, as the funds freed up by debt relief can be invested in climate-related initiatives. In contrast, debt-for-climate swaps face several challenges. One of the primary challenges is the complexity of the process. The coordination between multiple stakeholders can be challenging to achieve, as the interests of governments, international financial institutions, and private creditors may not always align. Another challenge is ensuring the transparency and accountability of the process. Debt relief provided for climate-related initiatives should not be diverted to other purposes.

In North Africa, the use of this mechanism has been limited to only a few examples. With technical assistance from the UNDP, the Tunisian Debt-for-Environment Swap (DES) project was initiated in 1997 and completed in 2004. Tunisia's debt to Italy, amounting to 24 million euros, was canceled in exchange for the Tunisian Government's commitment to invest in environmental and biodiversity conservation projects. Similarly, under the Morocco Debt-for-Environment Swap (DES) project, initiated in 2013, Morocco's debt to France, amounting to 20 million euros, was canceled in exchange for investment in renewable energy and energy efficiency projects.

Although there are only a few examples in North Africa, there is potential for this mechanism to be used more widely in the region. Although they face challenges such as complexity and transparency, debt-for-climate swaps offer a promising approach to addressing both debt and climate challenges. The AfDB (2022) estimates that the potential for debt-for-climate swaps in Africa could be as high as USD 3 billion annually.

Source: Kreutzmann, 2020; The Nature Conservancy, 2019; AfDB, 2022

efficiency measures. This mechanism incentivizes companies to reduce emissions by providing financial rewards for reducing emissions below a certain level. Offsetting, on the other hand, allows companies to invest in emission reduction projects in other countries or sectors to compensate for their own emissions. This can create new business opportunities for the private sector, promote the development of clean energy technologies, and stimulate investment in low-carbon infrastructure. Offsetting can support sustainable agriculture, forestry, and renewable energy projects. According to the International Emissions Trading Association (IETA, 2017), emissions trading could reduce the cost of meeting climate targets by up to 80 percent by 2030.

3.3.1 Capacity building benefits from international agreements

Realizing the potential benefits of international agreements, such as the Paris Agreement on Climate Change and the Sustainable Development Goals (SDGs), requires building the capacity of North African countries to implement them effectively. Capacity building for climate action and green growth in North African countries require institutional, human, financial, and technological capacities that can be developed through national and international cooperation. The most crucial capacities would allow countries to: (i) negotiate international agreements; (ii) attract projects (accreditation, planning, implementation; (iii) ensure follow-up (e.g. measurement, reporting and verification under the Paris Agreement).

Institutional capacity: To effectively implement climate action and green growth policies, North African countries need strong institutions and governance structures that can coordinate and oversee these efforts. Institutional capacity building can enhance the capacity of governments to develop and implement policies and regulations that align with international standards and best

practices. This includes creating legal frameworks that incentivize the adoption of renewable energy sources and green technologies, providing financial support for climate action and green growth projects, and developing monitoring and reporting systems to measure progress and identify challenges. It also includes establishing clear roles and responsibilities for different government agencies and developing mechanisms for stakeholder engagement and public participation. For example, Tunisia has established a High Council for Climate, responsible for coordinating national climate policies and overseeing the implementation of the country's National Climate Plan and the Tunisia's National Agency for Energy Conservation oversees the implementation of energy efficiency measures and renewable energy projects. Algeria has established a Ministry of Environment and Renewable Energy, responsible for coordinating climate action and green growth efforts across government departments. Morocco's Ministry of Energy, Mines, and Environment oversees the development and implementation of renewable energy and climate policies. Egypt launched the Country Platform for the Nexus of Water, Food, and Energy (NWFE) Program, that aims to accelerate the national climate agenda and designed to leverage multi-stakeholder partnerships to mobilize finance, provide technical assistance and catalyze private investment.

Financing and investment: North African countries need access to financing and investment to support the development of low-carbon infrastructure and the transition to a green economy. Financial capacity building includes attracting investments from international institutions, such as the Green Climate Fund, and developing financial mechanisms, such as carbon pricing, green bonds, to incentivize private sector investment in climate action and green growth such as carbon pricing, green bonds and public-private partnership, to incentivize For example, Egypt has secured funding from the Green Climate Fund to support the development of a 200 MW wind farm in the Gulf of Suez, while Morocco has attracted significant private sector investment in its renewable energy sector through public-private partnerships. The Green Climate Fund has provided funding for several renewable energy projects in North Africa, including a wind power project in Egypt and a solar power project in Morocco.

Technological capacity: North African countries need expertise to deploy renewable energy and other clean technologies, including investment in research and development and fostering partnerships with international technology providers. Technological capacity building can enable North African countries to access and adopt innovative technologies to enhance their efficiency, productivity, and sustainability. For example, Algeria has partnered with international companies such as Siemens and General Electric to develop renewable energy projects, while Morocco has established a national research center focused on renewable energy and energy efficiency.

Human capacity: Human capacity building improves the skills and knowledge of professionals and workers in various sectors to enhance productivity, innovation, and competitiveness. There is a need for education and training programs to build the skills and knowledge of local communities, government officials, and business leaders to support the transition to a green economy. This includes investing in vocational training programs to support the development of a skilled workforce for the renewable energy sector and providing education and awareness-raising programs to promote energy efficiency and sustainability. This also includes training programs for engineers, technicians, and managers in the renewable energy sector capacity building for farmers to adopt sustainable and climate-smart agriculture practices. For example, Tunisia has developed a vocational training program focused on renewable energy, while Morocco

has implemented a national program to raise awareness about energy efficiency and promote behavior change.

Data and information systems: North African countries need to develop robust data and information systems to monitor and evaluate progress towards climate action and green growth goals and to inform policy and decision-making. This includes establishing monitoring and reporting frameworks to track emission reductions and progress towards renewable energy targets and investing in data management and analysis tools. For example, Algeria has developed a greenhouse gas emissions inventory to track progress towards toward its emissions reduction targets, while Tunisia has established a national data portal to provide access to climate-related data and information.

3.3.2 Opportunities from international agreements

International agreements such as the Paris Agreement and the Convention on Biological Diversity (CBD) provide many opportunities for North African countries to address the challenges of climate change and biodiversity loss while promoting sustainable economic development and growth.

Access to funding: International funding can be used to support renewable energy projects, improve energy efficiency, and develop sustainable agriculture and forestry practices (See Annex 1 for the list of climate financing initiatives in Africa). The Paris Agreement, for example, established the Green Climate Fund (GCF) to help developing countries finance their climate change mitigation and adaptation efforts. Other sources of funding include the Adaptation Fund, the Global Environment Facility (GEF), and the World Bank's Climate Investment Funds (CIFs).

Technology transfer: International agreements allow countries to access and transfer clean energy technologies and other innovations from developed countries. The Paris Agreement, for example, established a technology mechanism to support technology development and transfer to developing countries. This can help North African countries to develop their renewable energy capacity and improve energy efficiency while also creating opportunities for technology transfer and knowledge-sharing.

Increased trade and investment: International agreements such as the Paris Agreement can help to stimulate investment in clean energy and green sectors, creating opportunities for increased trade and economic growth. The European Union's (EU) Green Deal aims to make Europe the world's first climate-neutral continent by 2050. It includes a plan to support North African countries financially to develop renewable energy projects. The EU is already the largest trading partner of North African countries, and this partnership can be leveraged to support the development of green industries.

Capacity building: International agreements provide opportunities for North African countries to build their capacity to address climate change and protect their biodiversity. The Capacity-building Initiative for Transparency (CBIT) is a program established under the Paris Agreement to support developing countries in building capacity for implementing transparency-related activities. In addition, the CBD has established a capacity-building program to support the implementation of the Convention's objectives, including developing national biodiversity strategies and action plans.

Improved international cooperation: International agreements provide opportunities for North African countries to work collaboratively with other countries and international organizations to address global challenges such as climate change and biodiversity loss.

This can help to build alliances and partnerships that can be leveraged to support the development of sustainable policies and practices at the national and regional levels. The African Union (AU) has developed a comprehensive framework for climate change adaptation and mitigation that aims to mobilize resources and facilitate cooperation among African countries.

3.3.3 Opportunities from voluntary agreements

Voluntary agreements refer to non-binding agreements between stakeholders, such as businesses and governments, to take voluntary actions to achieve certain goals, such as reducing greenhouse gas emissions. Voluntary agreements have increased in recent years as a complementary tool to international contracts in addressing climate change (Lutsey et al., 2016).

One of the primary opportunities from voluntary agreements is their flexibility and their potential to encourage innovation, thereby stimulating the development of new technologies and practices. Voluntary agreements allow stakeholders to act on their own terms without being bound by strict regulations. This flexibility encourages innovation and experimentation, as stakeholders can explore different approaches to achieve their goals. For example, businesses can develop their own energy-saving measures rather than being required to comply with strict regulations. Also, the voluntary agreement between the European Union

Box 3.7 : Loss and damage fund prioritized at COP 27

Loss and damage refer to the impacts of climate change that cannot be prevented or mitigated, such as the loss of lives, homes, and livelihoods caused by extreme weather events, sea level rise, and other climate-related disasters. Developing countries, disproportionately affected by climate change despite contributing less to its causes, have been calling for more significant support from developed countries to address loss and damage. The idea of a loss and damage fund, which would provide financial resources to help countries cope with the consequences of climate change that cannot be avoided, has been discussed in previous United Nations Framework Convention on Climate Change (UNFCCC) meetings. The Conference of the Parties (COP) 27 to the UNFCCC reached an agreement to provide “loss and damage” funding for vulnerable countries hit hard by climate disasters.

The COP27 resulted in countries delivering a package of decisions that reaffirmed their commitment to limit global temperature rise to 1.5 degrees Celsius above pre-industrial levels. The package also strengthened action by countries to cut greenhouse gas emissions and adapt to the inevitable impacts of climate change, as well as boosting the support of finance, technology and capacity building needed by developing countries. Governments took the ground-breaking decision to establish new funding arrangements, as well as a dedicated fund, to assist developing countries in responding to loss and damage. Governments also agreed to establish a ‘transitional committee’ to make recommendations on how to operationalize both the new funding arrangements and the fund at COP28 in 2023.

The establishment of a Loss and Damage Fund was, for many, the highlight of the COP27 for climate-vulnerable developing countries. Loss and damage refer to the negative and recurrent consequences that arise from the unavoidable prolonged heatwaves, desertification, acidification of the sea or bushfires, species extinction and crop failures. The African continent for example, contributes less than 4 percent of GHG emissions, yet is the most vulnerable to its impacts – costing up to five times more on adapting to the climate crisis than on healthcare. Vulnerable countries are getting five to ten times below estimated climate finance needs, and will need over USD 300 billion per year by 2030 in the form of loss and damage finance. It is important that a Loss and Damage Fund tackles the gaps that current climate finance institutions. Combined adaptation and mitigation finance flows in 2020 fell at least USD 17 billion short of the USD 100 billion pledged to developing countries.

Source: UNEP, 2022, https://www.unep.org/events/conference/un-climate-change-conference-unfccc-cop-27; UNFCCC, 2022, https://unfccc.int/event/cop-27

and the automotive industry to reduce carbon dioxide emissions has led to the development of new technologies, such as hybrid and electric vehicles. It has also led to using lightweight materials and aerodynamic design, which are low-cost options for reducing emissions. However, voluntary agreements also face challenges. One of the primary challenges is the need for enforcement mechanisms. Because voluntary agreements are non-binding, there are no penalties for non-compliance. This can result in low levels of participation and a lack of effectiveness. Another challenge is the potential for free ridership, where some stakeholders may choose not to participate in voluntary agreements and benefit from the efforts of others.

3.4 Governance of natural wealth in North Africa

The governance of natural wealth in North Africa is a complex issue that involves multiple actors, including governments, private companies, civil society organizations, and international institutions. It also involves a wide range of legal, political, economic, and environmental factors that shape the management and distribution of natural resources.

3.4.1 Institutions and efficient management of natural resources

The institutions and efficient management of natural resources in North African countries have been a significant challenge. Despite the rich natural resources available in the region, the lack of proper management has led to environmental degradation. Although some efforts have been made, there is still room for improvement regarding, accountability, and public participation in decision-making processes.

One positive development in the region is the establishment of institutions that promote sustainable development and natural resource management. In Morocco, the Ministry of Environment has developed a national strategy for the sustainable management of water resources, which includes the construction of dams, irrigation systems, and promoting water conservation practices. Algeria's Ministry of Environment has launched several initiatives to protect the country's rich biodiversity, including establishing protected areas and promoting ecotourism. Similarly, National Oil Companies (NOCs) in North African countries have been instrumental in natural resource management. The NOCs such as Sonatrach[58] in Algeria, ETAP in Tunisia, and EGPC in Egypt are responsible for exploring, producing, and distributing oil and gas resources. However, the NOCs have also promoted transparency and accountability in the oil sector, with the publication of annual reports and the implementation of an open data portal. Civil society organizations (CSOs) have also played a critical role in natural resource management in North African countries. CSOs advocate for environmental protection, promote public participation in decision-making processes, and monitor the activities of government and private sector actors. For example, in Tunisia, the Association for the Protection of the Environment and Heritage of Bizerte Bay (APEB) has been instrumental in the protection of the Bay's ecosystem, which has been threatened by industrial pollution and overfishing. Mauritania was the first country in the world to engage in the Fisheries Transparency Initiative (FiTI) process in 2016. So far, Mauritania has published two reports on the monitoring of its compliance with the requirements of the FiTI standards thanks to the dynamism of civil society and private sector actors engaged in the multi-stakeholder group. Despite these positive developments, there are still significant challenges in the region regarding natural resource management.

[58] *zSonatrach is the 12th largest oil consortium in the world, with 154 subsidiaries operating over the entire oil value chain and the largest oil and gas company in Algeria and Africa.*

One critical challenge is the need for more public participation in decision-making processes. Additionally, lack of accountability remains a significant challenge in the region, which hinders the effective management of natural resources.

3.4.2 Legal frameworks for natural resource extraction in North Africa

The legal frameworks for natural resource extraction in North African countries vary depending on the country and the resource type. Generally, these legal frameworks aim to regulate the exploration, exploitation, and management of natural resources while promoting economic development, protecting the environment, and fair distribution of revenues. Each nation has its own set of laws and regulations governing the sectors. However, some commonalities exist in how these countries manage their natural resources.

North African countries generally have a mix of State-owned and privately-owned companies in natural resource extraction. The state often holds a majority stake in these companies and is usually responsible for granting licenses to private companies for exploration and extraction activities. The AfBD (2023) considers the division of responsibilities with the creation of special authorities to regulate and monitor various natural resources and special departments responsible for policy matters. One important legal framework for natural resource extraction in North Africa is the United Nations Convention on the Law of the Sea. This convention governs the use and management of marine resources, including oil and gas, and sets out rules for delimiting maritime boundaries between neighboring countries. Another important legal framework is the International Labor Organization (ILO) Convention on Indigenous and Tribal Peoples (No. 169). This convention recognizes the rights of indigenous and tribal peoples to their lands, territories, and resources and requires that governments consult with these groups before approving any resource extraction projects. Additionally, most North African countries have environmental laws and regulations that govern the exploration and extraction of natural resources. These laws typically require companies to conduct environmental impact assessments and implement measures to mitigate any adverse effects on the environment and local communities. The legal frameworks for non-renewable natural resource extraction in North Africa typically cover several key areas. Firstly, they govern hydrocarbon exploration, production, and distribution, such as oil and gas. They set out the rights and obligations of companies operating in the sector and establish a regulatory framework. These legal frameworks also provide for the sharing of revenues between the state and the companies operating in the sector. Secondly, the legal frameworks address environmental protection. They require companies to conduct environmental impact assessments before starting any projects that could significantly impact the environment. They also require companies to take measures to prevent and mitigate environmental damage caused by their activities. Finally, the legal frameworks provide for the fair distribution of revenues. They establish funds to manage and distribute revenues from extracting non-renewable natural resources. These funds ensure that the revenues are used to promote sustainable economic development and benefit the broader population rather than being concentrated in the hands of a few.

However, there are several challenges in implementing these legal frameworks, particularly weak enforcement mechanisms, and inadequate public participation. The enforcement mechanisms for natural resource extraction laws in North African countries should be reinforced. In many cases, more resources and capacity are needed to monitor and enforce compliance with these laws. For example, in Libya, the lack of institutional capacity and political instability has resulted in a lack of effective enforcement of laws regulating oil and

gas exploration and production. Another significant challenge is inadequate public participation in the decision-making processes related to natural resource extraction. In many cases, communities and civil society organizations are not adequately consulted or informed about the potential impacts of natural resource extraction projects. Despite these challenges, there have been some positive developments in the legal frameworks for natural resource extraction in North African countries. For example, in Morocco, a new mining code was adopted in 2015 to improve transparency, promote public participation, and protect the environment. Similarly, in Egypt, a new gas law was enacted in 2017 to promote transparency, attract foreign investment, and protect the environment.

3.4.3 Legal frameworks for renewable resources

North African countries have also developed legal frameworks to regulate the extraction of renewable natural resources, such as wind, solar, and hydropower. Table 3.6 summarizes the legal frameworks which: (1) Regulate the production, transmission and distribution of renewable energy including solar, wind, hydro, and geothermal as well as green hydrogen and electricity consumption; (2) Define the conditions for granting permits and licenses for renewable energy projects and sets out the rights and obligations of renewable energy producers; and (3) Set targets for producing renewable energy as a share of the country's total electricity production. In Morocco, the law also shows a feed-in tariff system for renewable energy producers. The Moroccan Agency for Sustainable Energy (MASEN) is responsible for implementing renewable energy policies in Morocco.

The legal framework also considers renewable natural capitals, including fisheries, water, and land. Although they are complex and varied, these legal frameworks aim to promote the development of renewable energy sources, reduce reliance on fossil fuels, mitigate the impacts of climate change, and promote sustainable development. While there are some promising initiatives to promote sustainability and conservation, much more needs to be done to address the underlying governance and political challenges that have hindered progress in this area. The legal frameworks for renewable natural resource extraction in North Africa typically cover several key areas. Firstly, they establish a regulatory framework for the sector, outlining the rights and obligations of companies operating in the renewable energy sector. They also provide incentives for companies to invest in renewable energy, such as tax incentives and feed-in tariffs. Secondly, the legal frameworks address environmental protection. They require companies to conduct environmental impact assessments before starting any renewable energy projects and to take measures to prevent and mitigate any environmental damage caused by their activities. Finally, the legal frameworks provide for the fair distribution of benefits. They establish funds to manage and distribute revenues generated from renewable energy projects and ensure that the benefits are shared fairly among the population.

North African countries have made significant progress in developing legal frameworks for renewable energy. These countries have adopted policies and regulatory frameworks to promote renewable energy development, such as feed-in tariffs, renewable energy targets, and green energy certificates (UNEP, 2018). For example, Morocco has adopted a comprehensive legal framework for sustainable forest management, which includes measures to promote biodiversity conservation, community participation, and sustainable use of forest resources. Algeria has established protected areas and wildlife reserves, and Tunisia has developed a national strategy for sustainable fisheries management. However, the region's legal frameworks have some common trends and challenges.

Table 3.6 : Legal frameworks of renewable resources in North Africa

Country	Legal framework	Date of promulgation
Algeria	Renewable Energy Law No. 13-01	2013
Egypt	Electricity Law No. 87	2015
Libya	Renewable Energy Law No. 10	2019
Mauritania	Renewable Energy Law No. 022	2015
Morocco	Development of Renewable Energy Law No. 13-09	2010
Tunisia	Law on the Promotion of Renewable Energy	2015

One of the most pressing challenges is balancing conservation with economic development. Many North African countries have significant natural resources, such as oil, gas, and minerals, that have driven economic growth but have also led to environmental degradation and conflicts with local communities (UNEP, 2018).

Countries in North Africa have developed laws, regulations, and other rules to govern their scarce water. Numerous treaties, protocols, conventions, and institutional arrangements have been created to use, develop, and protect shared freshwater and related ecosystems. These frameworks and arrangements increasingly help crystallize mechanisms for preventing and peacefully resolving disputes over water resources (Rio+20, 2012). The North African countries have adopted various international, regional, and bilateral agreements on water resources.

Regional and bilateral agreements have been concluded, providing for joint water management of shared waters. The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (the Water Convention), adopted by the United Nations Economic Commission for Europe (UNECE) in 1992, promotes cooperation on the transboundary surface and ground waters and strengthens their protection and sustainable management. The Water Convention obliges riparian States to conclude agreements and establish joint bodies.

Transboundary institutional arrangements: The Nile Basin Initiative (NBI) was launched in February 1999 by the water ministers of the countries that share the river: Egypt, Sudan, Ethiopia, Uganda, Kenya, Tanzania, Burundi, Rwanda, Democratic Republic of Congo, and Eritrea (the latter is an observer). The NBI seeks to develop the river cooperatively, share socio-economic benefits, and promote regional peace and security. It provides an institutional mechanism, a shared vision, and policy guidelines to provide a basin-wide framework for cooperative action[59].

One of the legal frameworks for the fisheries of the North African countries is the commitment to adopt international obligations such as the United Nations Convention on the Law of the Sea (UNCLOS). Other international fisheries, maritime, and biodiversity instruments have brought great opportunity to AU-Member States through, inter alia, the declaration of 200 nautical miles Exclusive Economic Zones (EEZs) and their associated privileges. However, many countries have yet to embrace more completely the attendant responsibilities and derive the benefits associated with these instruments.

[59] Global Environmental Facility (GEF), University of Columbia, 2011. International Waters: Review of Legal and Institutional Frameworks.

Ensuring that the AU-Member States generally meet international obligations arising from UNCLOS, as well as other instruments to which they are a party, is an important step in improving the contribution of fisheries and aquaculture to economic growth and the welfare of fishing communities (AUC, 2014).

Since independence in the 1950s and 1960s, land policy formulation and implementation processes have evolved in North Africa[60], aligning with institutional transformations. Some countries in the region have nationalized colonial lands (Algeria, Mauritania, Morocco, and Tunisia). In contrast, others have limited property ownership and redistributed excess land among the landless agricultural labor (Egypt and Libya). North African countries have had different land reforms[61]. Land in Morocco and Tunisia constitutes a basic resource at the socio-economic level for many investors, seen as the most profitable and assured investment. The state lands in Tunisia and Morocco are owned by the central authority under two forms of appropriation: public and private. The private state land is non-transferable and non-sizeable but can be subjected to expropriation for public utility and transferable in certain conditions. The public state lands include roads for public usage, shores, rivers, lakes, woodlands, and aquifers. They are non-transferable, non-adverse possession, non-sizeable, and non-expropriable for public utility. Before the French colonial era, the land tenure system in Algeria knew two main types:

Box 3.8 : Selected international fisheries agreements and treaty-based organizations in North Africa

Some examples of international fisheries agreements made between North African countries and other countries or groups of countries to regulate and manage fishing activities in the waters surrounding North Africa. These agreements have played an essential role in promoting sustainable fisheries management and protecting fish stocks for future generations.

The General Fisheries Commission for the Mediterranean (GFCM) is an intergovernmental organization established to promote the development, conservation, and management of living marine resources in the Mediterranean and the Black Sea. North African countries such as Morocco, Algeria, Tunisia, Libya, and Egypt are members of this organization.

The Northwest Atlantic Fisheries Organization (NAFO) operates in the waters of the eastern Atlantic to manage and conserve fish stocks, and North African countries such as Morocco and Mauritania are members of this organization.

The United Nations Fish Stocks Agreement was adopted in 1995 and came into force in 2001, to provide a legal framework for conserving and managing straddling fish stocks and highly migratory fish stocks in areas beyond national jurisdiction. North African countries such as Morocco, Tunisia, and Egypt are parties to this agreement.

The Port State Measures Agreement (PSMA) is an international treaty to prevent, deter and eliminate illegal, unreported, and unregulated fishing. North African countries such as Morocco, Algeria, Tunisia, Libya, and Egypt have all signed and ratified this agreement.

Sources: https://www.fao.org/gfcm/en/; https://www.nafo.int/; https://www.fao.org/iuu-fishing/international-framework/un-fish-stocks-agreement/en/, and https://www.fao.org/port-state-measures/background/en/

[60] The Northern Africa Land tenure: challenges and opportunities of sustainable development.

[61] In Tunisia, efforts to modernize agriculture have been associated with land policies since independence. Land policy objectives were twofold: the amendment of traditional tenure systems; and the adjusting tenure systems to control land concentration and the sub-division of land. Land policy in Algeria is at the heart of agricultural development. The model of land policy adopted since the 1980s was inspired by the Eastern European countries, i.e., relocation of state lands. Although land problems have been identified as a major restriction to agricultural development in Morocco, land reforms have been limited. Land policy in the country has varied between two models: adopting a voluntary transformation process (adjustment) of land distribution and a more liberal policy of land distribution according to the land market principle. Land policy in Mauritania is part of the national policy debate. Egypt has known numerous land reforms, such as in 1961, 1969, 1981, 1991, and 1996, to expand agriculture by increasing the farmland areas. In May 2017, the Egypt government has enacted a new act that abolishes the previous legislations related to the desert lands, and the

the collective lands for the agro-pastoralists and the private ownership belonging to the peasants or traders. To promote and develop agricultural activities, Algeria has established a new legal framework that introduces promotional acts to allocate lands. In Mauritania, the land is always the property of a community and is never the exclusive property of an individual.

3.4.4 New approaches in legal frameworks for efficient natural resource governance

Efficient natural resource governance in North Africa requires robust legal frameworks that support sustainable development, local participation, and transparent management of revenues.

Here are some approaches that could be considered or improved:

- **Strengthening regulatory frameworks:** North African countries can strengthen their legal frameworks by developing laws and regulations aligned with international best practices, ensuring that environmental and social standards are met. This can include developing regulatory frameworks addressing community participation, environmental impact assessments, and value addition, including local content requirements.

- **Promoting transparency and accountability:** There is a need to promote transparency and accountability in the natural resource sector, including the management of revenues. This can be achieved through public reporting mechanisms, independent audits, and stakeholder engagement.

- **Strengthening local participation:** North African countries can support local participation in natural resource activities, ensuring that local communities have access to information, are consulted in decision-making processes, and benefit from natural resource revenues.

- **Integrated natural resource management:** This approach seeks to integrate environmental, social, and economic considerations in natural resource management. It involves the participation of different stakeholders in decision-making processes and emphasizes the need for adaptive control (UNEP, 2015).

- **Payment for ecosystem services (PES)** is a market-based approach that aims to provide financial incentives to landowners and communities to conserve and sustainably use natural resources. It can promote the conservation and restoration of degraded ecosystems and support the livelihoods of local communities (FAO, 2020).

- **Community-based natural resource management (CBNRM)** is an approach involving local communities in managing and conserving natural resources. It recognizes the importance of local knowledge and institutions in natural resource management and promotes community empowerment and participation (UNDP, 2019).
- Environmental impact assessment (EIA) is a tool that assesses the potential environmental, social, and economic impacts of proposed projects and activities. It helps decision-makers to identify and mitigate potential negative effects and ensure sustainable development (UNEP, 2015). It is worth making them available for local communities and other stakeholders.

3.4.5 Value addition and local content of natural capital in North Africa

Value addition and local content are important concepts for the development of natural resources in North African countries. Despite the abundance of natural wealth, many

North African countries have struggled to achieve sustainable economic development and fully capture their resources' value.

One challenge is the dominance of multinational corporations in extracting and processing natural resources. These companies often have more resources and expertise than local firms, and they may be better able to negotiate favorable terms with governments. As a result, the benefits of natural resource extraction may be skewed towards foreign companies rather than local communities. To address this challenge, many North African countries have sought to increase local firms' role and promote the development of value-added industries. This involves moving beyond simple extraction and processing of raw materials and instead focusing on activities that create more value and generate more jobs locally. For example, a country that exports raw iron ore may seek to develop a local steel industry. For example, Algeria has sought to increase the value-added of its oil and gas sector by developing local refining and petrochemical industries. In 2020, the country announced plans to build a new petrochemical complex in Arzew, which is expected to create thousands of jobs and generate significant revenue. Morocco has established a national mining strategy focusing on developing local expertise and promoting sustainable mining practices. Libya has struggled to develop value-added industries due to the country's ongoing conflict and political instability. However, the government has sought to increase local content in its oil and gas sector by requiring international companies to use local suppliers and contractors.

The development of local content policies is often complicated by lack of local capacity and expertise. Local content refers to the percentage of goods and services sourced locally for natural resource extraction and processing. By increasing local content, countries can create more jobs and support local industries. Egypt and Tunisia have implemented a range of policies to increase local content in its oil and gas sector. These include requiring international companies to use local suppliers and contractors for goods and services. Egypt has established a local content fund to support the development of local firms. Tunisia has established a national agency to support the development of local firms (World Bank, 2019). However, local firms may not have the necessary skills or equipment to provide goods and services to the resource sector, and they may struggle to meet the quality standards required by international companies. To address these challenges, North African countries may seek to develop local content policies that balance the need for local participation with the need for efficiency and quality.

Overall, the governance of natural wealth in North Africa is a complex and multifaceted issue that varies between countries and resources. Many North African countries are actively seeking to promote sustainable and inclusive economic growth by increasing local participation in the natural resource sector. This requires a coordinated effort from governments, local communities, and international companies. By promoting value addition and local content, North African countries can ensure that the benefits of natural resource extraction are shared more equitably.

3.5 Political economy, illicit trade, and other leakages

The region's political economy has been characterized by a high degree of state intervention, limited private sector participation, and centralized decision-making. It also has been marked by a need for more transparency, accountability, and effective governance structures. This has led to a lack of competition, limited innovation, and a lack of incentives for the private sector to invest and create jobs.

The World Bank report on (2019b) identifies illegal fishing, wildlife trafficking, and illegal logging as the most prominent forms of illicit trade in natural resources. The report estimates that illegal fishing alone results in economic losses of up to USD 1.25 billion annually. Similarly, the United Nations Environment Program report on sand and sustainability highlights the impact of illegal sand mining on natural capital, being responsible for the loss of 23 hectaress of land per year globally. UNEP (2019) estimates that illegal sand mining has resulted in significant environmental degradation and sand use change, affecting ecosystems and livelihoods In North Africa.

In North Africa, the impact of Illegal, Unregulated, and Unreported (IUU) fishing is significant, both on the marine ecosystem and the communities that depend on fish for their livelihoods. These activities have increased over 2019-2021 in all North African countries but Libya and Morocco (Figure 3.4). It represents a major problem facing the world's oceans (Box 3.9).

3.5.1 Institutional options to deal with illicit resource management

The illicit exploitation of natural resources is a significant challenge faced by many countries worldwide. Illegal mining, logging, and wildlife poaching are examples of how valuable resources are being exploited for financial gain, often at the expense of local communities and the environment. Addressing this problem requires effective institutional options to help prevent, detect, and punish illicit resource management. One option is to establish specialized units within law enforcement agencies to investigate and prosecute cases of illicit resource management. Another option is to create independent regulatory agencies that are responsible for overseeing the management of natural resources. These agencies can help ensure that the exploitation of natural resources is done responsibly and sustainably. For example, the Extractive Industries Transparency Initiative (EITI) is an international organization that promotes transparency and accountability in managing natural resources. Participating countries must publish information about their natural resource revenues, which helps prevent corruption and illicit resource management (EITI, 2021). A third option is to establish partnerships between government agencies, civil society organizations, and the private sector to promote responsible resource management. For example, the Forest Stewardship Council (FSC) is an international organization that brings together stakeholders from the forestry sector to promote sustainable forest management. The FSC certification process provides incentives for companies to manage their forests responsibly, while also providing consumers with the assurance that the products they purchase come from sustainable sources (FSC, 2021).

3.6 Policy considerations

3.6.1 Concluding remarks

Harnessing natural capital in North African countries is a critical and complex task that requires careful planning and coordination. North African countries are endowed with significant natural resources, particularly land, water, minerals, and biodiversity, which can contribute to their economic development and social well-being. However, these resources are often underutilized and mismanaged, leading to environmental degradation, economic inefficiencies, and social inequities.

Harnessing natural capital is a promising financing option for climate and green growth initiatives in North Africa. Natural resources such as water, forests, and biodiversity are critical assets that can support sustainable economic development, enhance resilience to climate change, and generate significant co-benefits for local communities and ecosystems. However, to fully realize the potential of natural capital as a financing option in North Africa, there is a need to adopt a

holistic and integrated approach that considers the environmental, economic, and social dimensions of sustainability. This requires strengthening governance and institutions, promoting sustainable land and water management practices, developing renewable energy sources, investing in eco-tourism, and protecting biodiversity and natural habitats. Furthermore, there is a need to address weak governance, insufficient institutional capacity, and limited public awareness. Addressing these challenges requires a collaborative effort between governments, civil society organizations, and the private sector. Governments can play a key role in promoting sustainable natural resource management by strengthening regulatory frameworks, investing in institutional capacity, and ensuring that natural resource revenues are used to support sustainable development. Civil society organizations can contribute to this effort by promoting public awareness of the value of natural capital and advocating for policies that promote sustainable natural resource management. Finally, the private sector can play a role in financing and implementing sustainable natural resource management initiatives while generating economic benefits for themselves and local communities.

North African countries need to recognize the importance of engaging local communities in natural resource management, as they have traditional knowledge and practices that can contribute to the sustainable use and conservation of natural resources. In addition, there is a need to promote international cooperation and collaboration to address transboundary issues, such as water management, climate change, and biodiversity conservation. Generally, harnessing natural capital as a complementary financing option for climate and green growth in North Africa has the potential to support sustainable economic development, enhance resilience to climate change, and generate significant co-benefits for local communities and ecosystems. However, this requires a long-term commitment and concerted efforts. It is up to governments, civil society organizations, and the private sector to work together to realize this potential and create a more sustainable and prosperous future for the region.

3.6.2 Policy recommendations

Strengthen anti-corruption measures: This includes establishing independent anti-corruption agencies or commissions with sufficient powers and resources to investigate and prosecute cases.

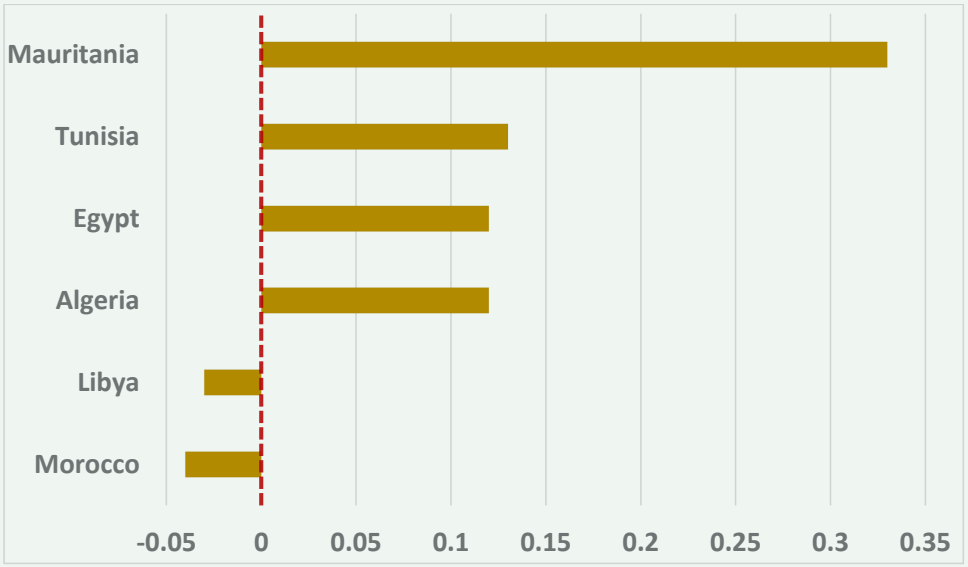
Investing in education, capacity building, training, and public awareness campaigns can help raise awareness and promote behavior change towards more sustainable practices. Raising public awareness and engagement on the importance of natural capital is crucial for ensuring its long-term sustainability. Governments could promote public education campaigns on sustainable resource management practices and create platforms for stakeholder engagement and participation in decision-making processes.

Promote regional cooperation: North African countries should work together to establish regional frameworks and initiatives to combat illicit resource management, such as IUU fishing, and promote sustainable resource management practices.

Strengthen the rule of law: Governments should invest in building strong, independent judicial systems that can effectively prosecute corruption and other illicit activities. This includes ensuring adequate funding and resources for the judiciary and training for judges and prosecutors.

Enhance civil society participation: Governments should encourage and protect civil society participation in the fight against illicit resource management. This includes promoting an enabling environment for civil society organizations and journalists, protecting their freedom of expression and access to information, and involving them in policy-making processes.

Figure 3.4 : Changes in illegal, unregulated, and unreported fishing scores between 2019 and 2021



Source: Global Initiative Against Transnational Organized Crime (https://iuufishingindex.net/)

Box 3.9 : Illegal, unregulated, and unreported fishing in the World

Illegal, unregulated, and unreported (IUU) fishing threatens the sustainability of fish stocks and the livelihoods of millions of people who depend on them. IUU fishing refers to fishing activities that are not regulated or monitored by a national or international authority or violate conservation and management measures. These activities often involve the use of destructive fishing practices, such as bottom trawling and drift netting, which damage the marine ecosystem and deplete fish populations. According to the FAO (2020), IUU fishing accounts for up to 26 million tons of fish each year, representing 15 percent of the world's total annual catch. This illegal activity is estimated to be worth between USD 10 billion and USD 23.5 billion annually, making it one of the most profitable illegal trades in the world.

A range of measures are needed to address the problem of IUU fishing. These include strengthening governance and enforcement, improving monitoring and surveillance, and promoting sustainable fishing practices. International cooperation is also essential, as IUU fishing often involves transboundary and high-seas fishing, making it difficult for individual countries to address the problem independently. One of the key measures to combat IUU fishing is the adoption and implementation of international agreements and regulations, such as the United Nations Fish Stocks Agreement and the Port State Measures Agreement. These agreements provide a framework for cooperation among countries to combat IUU fishing and strengthen the management and conservation of fish stocks. Another approach is to promote sustainable fishing practices and support small-scale fishers and coastal communities. IUU fishing is a complex and persistent problem requiring a concerted effort by governments, civil society, and the private sector. The sustainability of the world's oceans and the livelihoods of millions of people depend on it.

Source: FAO, 2020; GFW, 2021; https://www.worldwildlife.org/

Promote international cooperation: North African countries should work with international organizations and partners to address the challenges of illicit resource management. This includes joining and implementing relevant international conventions and initiatives, such as the UN Convention against Corruption and the Extractive Industries Transparency Initiative.

Provide financial incentives for investments in renewable energy and manufacturing of batteries for renewable energy storage: Governments can provide financial incentives, such as tax breaks or subsidies, for companies and individuals to invest in renewable energy and other climate-friendly projects. Incentives should also be provided for manufacturing batteries and development of electric vehicle value chains in the region based on its significant, cobalt, phosphate, and iron ores. This can help to reduce the financial barriers to investing in green technologies.

Promote circular economy: Promoting a circular economy can help governments reduce waste, create green jobs, and promote sustained consumption and production. Governments reduce greenhouse gas emissions and promote sustainable development by reducing and promoting resource efficiency.

Support green growth infrastructure development: Infrastructure development is crucial for investments in green growth and fostering private sector investment. Governments can support infrastructure development for green growth by financing energy, transport, water and sanitation, and other infrastructure projects. They can also work with the private sector to develop public-private partnerships (PPPs) that can help to attract investment in infrastructure projects.

Mainstreaming green growth approaches into national development planning and budgeting processes: Governments can prioritize key sectors and low-hanging fruit opportunities to demonstrate early benefits and gain stakeholder buy-in. Key sectors are those in which green growth action can drive job creation and contribute to achieving SDGs. Key activities include climate-smart agriculture and agri-business, off-grid renewable energy access, and sustainable public transportation.

3.6.3 Roles of AfDB and other international actors

The African Development Bank (AfDB) and other international actors have a crucial role to play in addressing the challenges of lack of transparency and illicit resource management in North African countries. Here are some ways in which they can contribute:

Providing technical assistance: International actors, including the AfDB, can provide technical assistance to support the development and implementation of anti-corruption and transparency measures, such as open contracting and asset disclosure policies.

Funding and financing: The AfDB and other international financial institutions can provide financing for initiatives and projects to address the challenges of corruption and illicit resource management. This includes supporting efforts to strengthen governance and institutional capacity, promote sustainable resource management practices, and enhance transparency and accountability.

Advocacy and awareness-raising: International actors can use their influence to advocate for anti-corruption and transparency measures and raise awareness about the negative impact of corruption and illicit resource management on development outcomes.

Collaboration and partnerships: The AfDB and other international actors can collaborate with North African countries and regional organizations to promote regional cooperation and coordination in the fight against corruption and illicit resource management. This includes working together to establish regional frameworks and initiatives, such as combatting IUU fishing.

Monitoring and evaluation: International actors can support efforts to monitor and evaluate the effectiveness of anti-corruption and transparency measures and provide feedback on areas that require improvement.

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Annex 1 : Climate financing initiatives in Africa

	Climate Financing Initiatives	Finance Mobilization Potential and collaborators	Objective /Priority thematic areas /pillars
1	The Africa Adaptation Acceleration Program (AAAP)	USD 25 billion Global Center on Adaptation (GCA)	■ To scale up and accelerate adaptation actions across Africa Digital Technologies for Agriculture and Food Security ■ Resilient infrastructures (USD 7 billion worth) ■ Youth for Entrepreneurship and Job Creation (USD 3 billion) ■ Innovative financing adaptation gaps
2	Adaptation Benefits Mechanism (ABM)	USD 50 million Climate Investment Funds Green Climate Fund	■ To strengthen the resilience of vulnerable communities and ecosystems. ■ Integral component of the AAAP pillars
3	African Climate Change Fund (ACCF)	USD 12.5 million Government of Germany, Italy, and Belgium	■ To build Africa's resilience to the negative impacts of climate change and in transitioning to sustainable low-carbon growth ■ Not defined
4	African Circular Economy Facility (ACEF)	USD 4.4 million Finish Ministry of Foreign Affairs Nordic Development Fund	To build the case for the circular economy as a viable business model to help African countries achieve their development priorities Creation of enabling environments such as: ■ national circular economy roadmaps and ■ bankable circular economy investments
5	Africa NDC Hub	Includes resources indicated from 1-4 and more. 21 institutions	■ to provide African countries with the tools required for the effective delivery of their Paris Agreement commitments, in a coordinated manner and in accordance with their development priorities ■ to foster long-term climate action ■ to mobilize means of implementation. ■ to promote coordination, advocacy, and partnerships ■ with two focus areas of adaptation and private sector engagement
6	African Financial Alliance on Climate Change (AFAC)	Not Defined The entire African financial industry (banks, insurance, and stock exchanges)	■ to support private sector participation in climate finance delivery ■ to finance low-carbon and climate-resilient innovations ■ indexing and rating the decarbonizing and building resilience
7	Africa Disaster Risks Financing (ADRiFi) Program	USD 30 million African Risk Capacity (ARC) Governments of Switzerland and the United Kingdom	to issue sovereign parametric index-based insurance
8	Canada-African Development Bank Climate Fund	USD 114.8 million Government of Canada	to provide concessional loans to climate change-related projects with a strong gender-responsive component
9	Climate Investment Funds (CIF)		jump-start toward achieving low-carbon and climate-resilient development

10	ClimDev Special Fund	USD 400 million African Union and UN Economic Commission for Africa World Meteorological Organization	■ to provide relevant climate information to support climate-resilient development in Africa ■ generation and wide dissemination of reliable and high-quality climate information in Africa; ■ capacity enhancement of policymakers and policy support institutions; and ■ implementation of adaptation and community-based solutions and practices such as the development of Early Warning Systems
11	Desert to Power Initiative		■ to generate 10 GW of additional capacity and provide clean electricity for 250 million people ■ A key pillar of the Great Green Wall Initiative
12	Global Environment Facility (GEF)	USD 5.33 billion	■ The largest funder of projects to improve the global environment and provides grants for projects related to biodiversity, climate change mitigation, land degradation, chemicals, and waste, climate change adaptation, and international waters. ■ Motivates the private sector to engage in climate change mitigation and adaptation-related investments.
13	Green Climate Fund (GCF)	greater than USD 250 million per project/program	■ to limit or reduce greenhouse gas emissions in developing countries and help adapt vulnerable societies to the already-felt impacts of climate change ■ Ambitious contribution to attaining the mitigation and adaptation goals of the international community with the goal of keeping the temperature increase of the planet below 2 degrees Celsius.
14	Sustainable Energy Fund for Africa (SEFA)		to remove market barriers, build a more robust pipeline of projects and improve the risk-return profile of individual investments

Annex 2 Economic and social statistics in North Africa

Table A2.1 - Basic indicators, 2022

	Population	Land area	Population density	Gross domestic product[a]	Gross domestic product per capita[a]	Average annual real GDP growth, 2010–22
	(thousands)	(km^2 thousands)	(People per km^2)	(USD million)	(USD)	(%)
Algeria	44 903	2 382	19	582 751	12 978	2.2
Egypt[b]	110 990	995	111	1 674 652	15 088	4.1
Libya	6 812	1 760	4	137 970	20 253	1.1
Mauritania	4 736	1 031	5	30 394	6 418	4.0
Morocco	37 458	446	84	362 228	9 670	2.8
Tunisia	12 356	155	80	154 324	12 490	1.3
North Africa	217 256	6 769	32	2 942 317	13 543	3.5
Africa	1 424 855	29 614	48	8 298 147	5 824	3.5

a. Based on purchasing power parity valuation.
b. Based on fiscal year data (July–June).
Source: UNDESA 2022, African Development Bank statistics and estimates, and various domestic authorities.

Table A2.2 - Real GDP growth, 2014–24 (%)

	2014	2015	2016	2017	2018	2019	2020	2021	2022 (estimated)	2023 (projected)	2024 (projected)
Algeria	3.8	3.7	3.2	1.4	1.2	1.0	-5.1	3.4	3.0	3.1	2.4
Egypt[a]	2.9	4.4	4.3	4.3	5.3	5.6	3.6	3.3	6.6	4.4	5.1
Libya	-23.0	-0.8	-1.5	32.5	7.9	-11.2	-29.5	28.3	-12.1	17.9	8.0
Mauritania	4.3	5.4	1.3	6.3	4.8	5.3	-0.9	2.4	5.3	4.3	5.9
Morocco	2.7	4.3	0.5	5.1	3.1	2.9	-7.2	7.9	1.1	3.3	3.5
Tunisia	2.7	1.0	1.1	2.2	2.6	1.5	-8.6	4.3	2.4	1.9	2.8
North Africa	1.5	3.7	3.0	5.7	4.2	3.0	-1.7	5.4	4.1	4.6	4.4
Africa	3.8	3.4	2.1	4.0	3.6	3.0	-1.7	4.8	3.8	4.0	4.3

a. Based on fiscal year data (July–June).
Source: African Development Bank statistics, estimates, and projections and various domestic authorities.

Table A2.3 Demand composition and growth rate, 2021–24

	2021						2022 (estimated)				2023 (projected)				2024 (projected)			
	Final consumption		Gross capital formation		External sector		Total final consumption	Total gross capital formation	Exports	Imports	Total final consumption	Total gross capital formation	Exports	Imports	Total final consumption	Total gross capital formation	Exports	Imports
	Private	Public	Private	Public	Exports	Imports												
	(% of GDP)						(% real growth)				(% real growth)				(% real growth)			
Algeria	44.4	17.4	22.7	15.3	26.7	26.5	1.8	1.2	0.0	-3.3	3.1	0.4	2.5	-1.1	2.7	1.8	2.4	2.4
Egypt[a]	86.0	7.6	8.5	6.7	10.6	19.3	2.8	16.0	57.3	24.3	4.3	2.6	5.4	3.2	2.8	13.6	5.8	2.2
Libya	39.5	38.9	8.0	9.1	29.2	24.7	1.6	-5.2	-28.0	8.7	7.0	12.8	52.5	9.6	5.5	8.4	12.3	8.9
Mauritania	49.7	14.6	34.2	23.0	39.5	60.9	5.6	10.5	8.8	9.9	8.5	6.4	5.6	8.9	8.2	6.4	6.7	8.0
Morocco	59.5	18.6	25.3	5.8	32.9	42.0	3.5	-2.6	21.5	17.7	1.4	3.5	4.5	2.2	4.2	2.9	7.2	6.2
Tunisia	73.9	21.0	11.0	4.3	42.1	52.2	1.9	4.1	0.8	1.1	1.7	1.5	3.5	2.4	1.5	2.5	3.5	2.4
North Africa	69.3	13.9	14.1	9.3	20.9	27.5	2.6	9.1	34.0	15.8	3.8	2.7	6.9	2.5	3.0	9.1	5.5	3.1
Africa	66.4	12.8	14.6	9.2	22.0	24.9	4.7	5.9	12.9	15.8	3.4	3.4	4.5	2.5	3.3	6.0	3.0	3.7

a. Based on purchasing power parity valuation.
b. Based on fiscal year data (July–June).
Source: UNDESA 2022, African Development Bank statistics and estimates, and various domestic authorities.

Table A2.4 Public finance, 2021–24 (% of GDP)

	2021			2022 (estimated)			2023 (projected)			2024 (projected)		
	Total revenue & grants	Total expenditure & net lending	Overall balance	Total revenue & grants	Total expenditure & net lending	Overall balance	Total revenue & grants	Total expenditure & net lending	Overall balance	Total revenue & grants	Total expenditure & net lending	Overall balance
Algeria	26.8	33.7	-6.9	30.1	30.2	-0.2	28.0	32.6	-4.6	27.4	32.5	-5.0
Egypt[a]	19.0	25.9	-6.9	19.3	25.1	-5.8	18.2	24.3	-6.0	18.3	22.9	-4.7
Libya	60.0	48.7	11.3	64.3	50.5	13.8	68.3	46.2	22.1	65.2	46.4	18.8
Mauritania	21.3	19.2	2.2	20.2	21.4	-1.2	20.1	21.9	-1.9	20.0	21.6	-1.6
Morocco	21.9	27.9	-5.9	22.8	27.9	-5.1	22.5	27.1	-4.6	22.6	26.6	-3.9
Tunisia	25.7	33.3	-7.6	26.0	32.8	-6.8	25.4	30.6	-5.2	24.9	29.6	-4.7
North Africa	23.4	29.2	-5.8	25.3	28.5	-3.2	25.2	28.7	-3.5	24.8	27.9	-3.2
Africa	18.3	23.2	-4.9	18.0	22.0	-4.0	17.4	21.5	-4.1	16.8	20.6	-3.8

a. Based on fiscal year data (July–June).
Source: African Development Bank statistics, estimates, and projections and various domestic authorities.

Table A2.5 : Monetary indicators

	Inflation				Exchange rate			
	(%)				(Local currency unit per USD)			
	2021	2022 (estimated)	2023 (projected)	2024 (projected)	2019	2020	2021	2022 (estimated)
Algeria	7.2	9.3	7.7	6.7	119.4	126.9	135.3	142.3
Egypt	4.5	8.5	20.0	7.9	17.6	16.1	15.7	19.3
Libya	7.9	7.4	8.2	6.5	1.0	1.0	1.0	1.0
Mauritania	3.8	9.6	10.4	6.5	36.7	36.3	36.4	36.7
Morocco	1.4	6.6	5.4	3.6	9.6	9.5	9.0	10.2
Tunisia	5.7	8.3	9.2	6.8	2.9	2.8	2.8	3.1
North Africa	4.6	8.2	14.2	6.9	…	…	…	…
Africa	12.9	14.2	15.1	9.5	…	…	…	…

Source: African Development Bank statistics, estimates, and projections; various domestic authorities; and the International Monetary Fund International Financial Statistics database.

Table A2.6 Balance of payments indicators

	Trade balance				Current account balance				Current account balance			
	(USD millions)				(USD millions)				(% of GDP)			
	2021	2022 (estimated)	2023 (projected)	2024 (projected)	2021	2022 (estimated)	2023 (projected)	2024 (projected)	2021	2022 (estimated)	2023 (projected)	2024 (projected)
Algeria	1 094	20 067	6 926	-1 302	-4 527	14 256	5 927	4 990	-2.8	7.8	3.0	2.4
Egypt[a]	-42 060	-43 396	-38 690	-42 095	-18 436	-13 035	-10 615	-7 893	-4.4	-3.5	-3.5	-2.4
Libya	…	…	…	…	5 422	3 966	11 343	11 016	13.9	9.0	24.5	22.8
Mauritania	-580	-955	-243	265	-780	-1 396	-1 222	-1 020	-7.9	-13.7	-11.1	-8.5
Morocco	-19 890	-26 996	-23 940	-24 442	-3 243	-6 090	-6 497	-6 264	-2.3	-4.6	-4.4	-4.
Tunisia	-4 781	-7 020	-6 844	-6 417	-2 781	-3 612	-3 003	-2 714	-6.0	-8.5	-6.4	-5.4
North Africa	-66 216	-58 300	-62 791	-73 992	-24 345	-5 911	-4 068	-1 886	-3.0	-0.8	-0.5	-0.2
Africa	-49 318	-50 466	-74 942	-88 783	-45 875	-60 535	-69 296	-76 207	-1.7	-2.1	-2.3	-2.3

Source: African Development Bank statistics, estimates, and projections; various domestic authorities; and the International Monetary Fund International Financial Statistics database.

Table A2.7 : Intraregional trade, 2021 (USD millions)

	Exports to								
	Algeria	**Egypt**	**Libya**	**Mauritania**	**Morocco**	**Tunisia**	**North Africa**	**Africa**	**World**
Algeria	..	389.3	23.5	7.4	229.0	972.7	1 622.0	2 006.1	36 700.1
Egypt	491.0	..	808.7	25.6	703.5	345.8	2 374.6	4 976.6	40 701.7
Libya	0.1	26.0	..	0.4	11.2	138.8	176.5	178.8	29 190.9
Mauritania	0.5	1.5	0.4	..	3.8	1.4	7.7	430.9	4 343.0
Morocco	190.4	122.9	86.8	260.4	..	114.4	775.0	3 110.3	36 560.1
Tunisia	236.6	67.0	645.7	19.3	253.5	..	1 222.1	1 701.2	16 695.2
	Imports from								
	Algeria	**Egypt**	**Libya**	**Mauritania**	**Morocco**	**Tunisia**	**North Africa**	**Africa**	**World**
Algeria	..	424.7	0.1	0.2	105.5	1 769.0	2 299.5	7 888.5	35 995.3
Egypt	166.1	..	49.8	0.7	173.2	64.2	454.0	1 428.6	83 502.8
Libya	25.1	808.6	..	0.4	92.6	736.9	1 663.7	1 669.0	18 540.5
Mauritania	28.1	21.2	0.4	..	173.3	15.1	238.0	337.2	3 564.0
Morocco	505.2	692.8	24.5	1.8	..	246.0	1 470.3	1 808.8	58 954.7
Tunisia	792.8	269.9	77.2	2.2	132.6	..	1 274.8	1 348.5	22 496.2

Source: United Nations Conference on Trade and Development.

Table A2.8: Demographic Indicators 2022

			Age distribution			
	Population growth rate	**Urban population**	**0–14**	**15–64**	**65 and older**	**Fertility rate**
	(%)	(% of total)		(% of population)		(births per woman)
Algeria	1.6	74.2	30.6	63.0	6.4	2.8
Egypt	1.6	41.2	32.9	62.3	4.8	2.9
Libya	1.1	81.4	28.3	66.8	4.9	2.4
Mauritania	2.6	60.5	41.6	55.2	3.2	4.3
Morocco	1.0	65.4	26.6	65.7	7.7	2.3
Tunisia	0.8	68.9	24.8	66.1	9.0	2.1
North Africa	1.5	55.5	30.9	63.2	5.9	2.7
Africa	2.4	44.1	40.2	56.4	3.5	4.2

Source: African Development Bank statistics and estimates, UNDESA 2022, and various domestic authorities.

Table A2.9 : Poverty and income distribution indicators

	National poverty line[a]		**International poverty line (USD 2.15 a day)**		**Gini index[b]**	
	Survey year	Population below the poverty line	Survey year	Population below the poverty line	Survey year	Value
		(%)		(%)		
Algeria	2011	5.5	2011	0.5	2011	27.6
Egypt	2017	32.5	2019	1.5	2019	31.9
Libya		...		...		...
Mauritania	2019	31.8	2014	6.5	2014	32.6
Morocco	2013	4.8	2013	1.4	2013	39.5
Tunisia	2015	15.2	2015	0.1	2015	32.8
North Africa		...		...		...
Africa		...		...		...

a. Defined as two-thirds of average consumption.
b. Based on income distribution.
Source: Various domestic authorities and the World Bank.

Table A2.10 : Access to services

	Telecommunications, 2021					
	Fixed telephone subscriptions	**Mobile/ cellular subscriptions**	**Internet users**	**Access to electricity, 2020**	**Population using at least basic drinking water services, 2020**	**People using at least basic sanitation services 2020**
	(per 100 people)	(per 100 people)	(%)	(% of population)	(%)	(% of population)
Algeria	11.5	106.4	70.8	99.8	94.4	86.0
Egypt	10.1	94.7	72.1	100.0	99.4	97.3
Libya	23.4	43.4	...	69.7	99.9	92.1
Mauritania	1.3	141.1	58.8	47.3	71.7	49.8
Morocco	6.7	137.5	88.1	100.0	90.4	87.3
Tunisia	13.5	127.6	79.0	100.0	97.5	97.4
North Africa	10.2	83.8	74.8	97.9	76.0	91.9
Africa	2.3	79.8	42.0	56.0	60.4	41.9

Source: African Development Bank statistics, the International Telecommunication Union World Telecommunication/ICT Indicators database, the United Nations Statistics Division Energy Statistics Database, WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation 2015, and various domestic authorities.

Table A2.11 : Health indicators

	Life expectancy at birth, 2022			**Prevalence of undernourished, 2020**	**Health personnel, 2011–21**	
			(years)	(% of population)		(per 100,000 people)
	Total	Male	Female		Medical doctors	Nurses and midwives
Algeria	77.1	75.9	78.5	2.5	173.2	155.9
Egypt	70.2	67.9	72.6	5.1	70.9	182.7
Libya	72.2	69.7	74.8	...	215.7	673.8
Mauritania	64.7	63.0	66.4	10.1	19.2	95.4
Morocco	75.0	72.9	77.2	5.6	73.2	139.1
Tunisia	74.3	71.4	77.4	3.1	126.1	243.3
North Africa	72.6	70.5	74.8	4.6	99.1	187.0
Africa	62.6	60.6	64.6	18.2	36.1	136.8

Source: African Development Bank statistics, UNDESA 2022, the Food and Agriculture Organization, and the World Health Organization.

Table A2.12 : Major diseases

	Healthy life expectancy at birth, 2019			Prevalence of HIV, ages 15–49, 2021	Infant mortality rate, 2021	Under-five mortality rate, 2021
			(years)	(%)	(per 1,000 live births)	(per 1,000 live births)
	Total	Male	Female	2021	2021	2021
Algeria	66.4	66.7	66.1	0.1	19.2	22.3
Egypt	63.0	62.3	63.7	0.1	16.2	19.0
Libya	65.2	64.9	65.5	0.2	9.2	10.8
Mauritania	59.8	60.2	59.4	0.3	32.2	40.5
Morocco	63.7	63.7	63.7	0.1	15.4	18.0
Tunisia	66.9	66.1	67.7	0.1	14.0	16.3
North Africa	64.0	63.7	64.4	0.1	17.0	19.9
Africa	57.2	56.3	58.1	2.7	46.4	66.6

Source: UNAIDS 2022 the UN Inter-agency Group for Child Mortality Estimation CME Info database, and the World Health Organization Global Health Observatory Data Repository.

Table A2.13 : Education Indicators

	Estimated adult literacy rate, 2011–21			Gross enrolment ratio, primary, 2011-21			Government expenditure on education (% of GDP, 2012–22)
	(% ages 15 and older)			(%)			(% of GDP)
	Total	Male	Female	Total	Male	Female	
Algeria	81.4	87.4	75.3	111.3	113.0	109.5	...
Egypt	73.1	78.8	67.4	106.4	106.0	106.9	3.9
Libya	...	...	...	...	...	...	...
Mauritania	67.0	71.8	62.2	100.4	97.4	103.5	1.7
Morocco	75.9	84.8	67.4	115.2	116.8	113.4	...
Tunisia	82.7	89.1	76.5	113.4	114.3	112.5	6.2
North Africa	75.9	82.4	69.6	109.0	109.5	108.7	4.2
Africa	69.7	76.2	63.6	103.0	104.8	101.0	4.4

Source: African Development Bank statistics, the United Nations Educational, Scientific and Cultural Organization Institute for Statistics database, and various domestic authorities.

Table A2.14 : Labor indicators, 2022

	Employment to population ratio, ages 15 and older			Labour force participation rate, ages 15 and older			Unemployment rate, total
			(%)			(%)	(%)
	Total	Female	Youth	Total	Female	Male	
Algeria	35.9	13.0	16.7	40.6	16.4	64.0	11.6
Egypt	38.9	12.7	19.4	41.8	15.1	68.3	7.0
Libya	37.7	25.2	8.0	47.5	34.4	60.4	20.7
Mauritania	36.3	23.1	15.9	40.8	26.4	56.6	11.1
Morocco	40.8	18.8	20.3	45.6	21.4	69.7	10.5
Tunisia	38.4	20.0	18.2	45.7	26.2	66.3	16.1
North Africa	38.6	15.0	18.7	42.7	18.2	67.0	9.6
Africa	61.2	49.4	44.4	62.6	53.9	71.8	7.4

Source: International Labour Organisation ILOSTAT database.

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