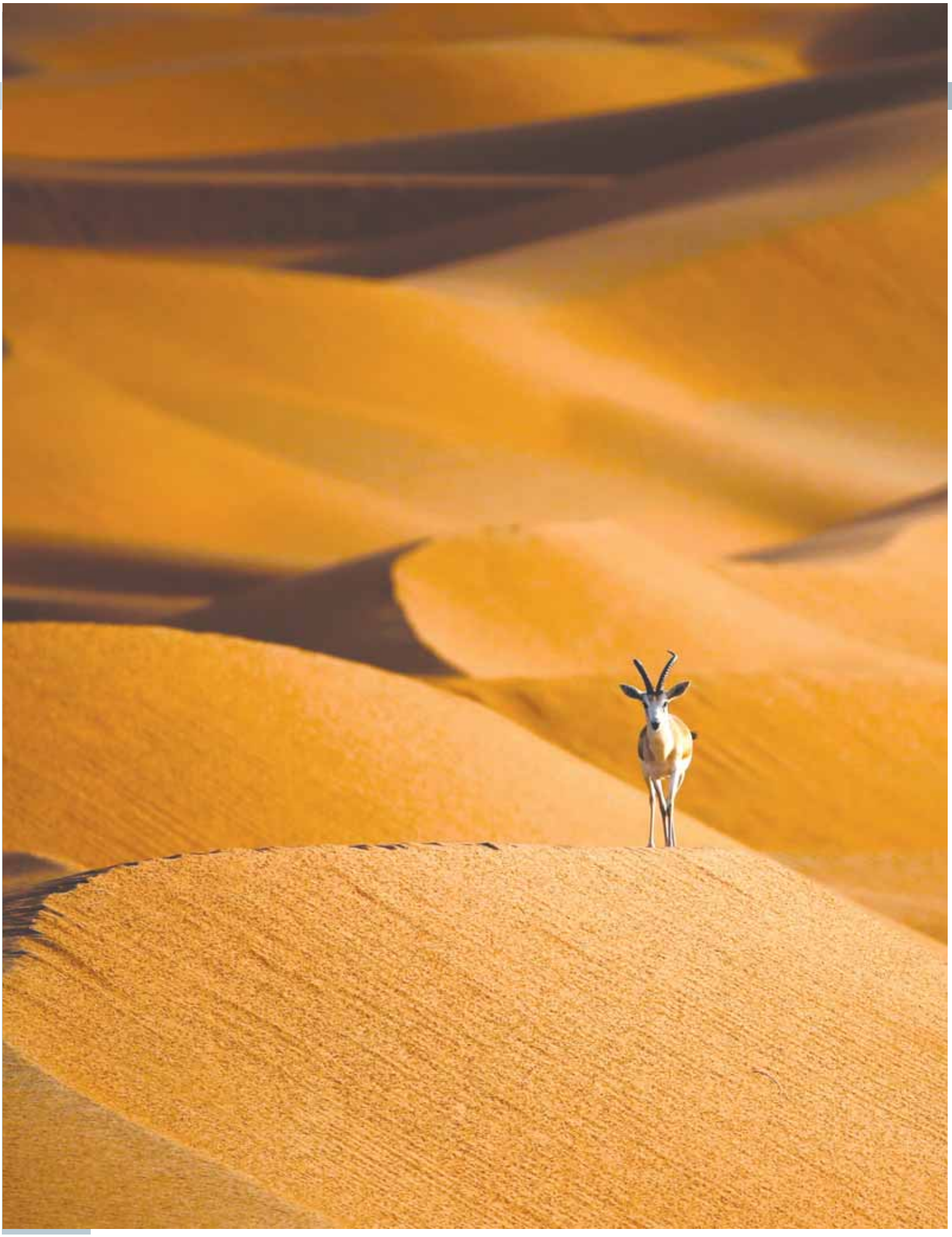

INTRODUCTION

# ARAB ENVIRONMENT IN 10 YEARS

**2017 Report of the Arab Forum for Environment and Development (AFED)**

The state of the environment in Arab countries over the past ten years has been characterized by disparities. While the situation continued to deteriorate in many aspects, there has been progress on some fronts. Despite the lack of real improvement in several countries, mainly those that are facing political unrest and instability, others have made strides towards shifting to a more sustainable path by introducing adequate policies and allocating more financial resources for investments in environmental infrastructure.

The initiation of certain policies that promote a green and sustainable economy was sparked by the inevitability of addressing emerging critical financial problems, alongside shortages in natural resources. For example, phasing out subsidies and implementing major investments in energy efficiency and renewable energy have been driven by increased local demand for energy and budget constraints prompted by lower oil prices. Water shortages have also led to investments in water efficiency and in renewable sources of water, including wastewater recycling and reuse. In order to achieve food security, many Arab countries started introducing sustainable agricultural practices, including more efficient irrigation and increased productivity. Moreover, adopting a nexus approach comprising water, food, and energy is increasingly being considered as a way to enhance synergies and complementarities between water, food, and energy policies in the region. It is true that policies in the right direction have already been introduced, but they still are in their infancy, and tangible results are still to be seen. There is an urgent need for a fast move from declarations to implementation. Key to such developments is increased coordination and cooperation at the regional level, which should not be overshadowed by political conflicts.

An AFED survey showed that the Arab public's sentiments are in line with analyses by experts that the environment has continued to deteriorate over the last ten years. Despite some bright spots, governments are not doing enough to tackle the challenges and manage the environment properly, as a main pillar of sustainable development.

## 1. PUBLIC OPINION

A public opinion survey carried out by AFED in 22 countries revealed that a vast majority of Arabs believe that the environment has deteriorated in their countries over the last ten years. Results were compared to a similar survey carried out by AFED in 2006. Those who thought that the situation deteriorated comprised 60 percent, the same as in 2006, while 20 percent said it improved, down from 30 percent in 2006, and 20 percent said it has not changed, reflecting a negative outlook. A vast majority of 95 percent think that their country is not

doing enough to tackle environmental challenges, a similar result as in the earlier survey.

The most important environmental challenges according to the survey are solid waste, followed by weak environmental awareness, deterioration of water resources, pollution and climate change. This is in line with the results from ten years ago, except for air pollution, which was ranked the biggest challenge in 2006.

The top causes for environmental deterioration as indicated by the respondents were bad environment management, non-compliance with environmental legislation, weak environment institutions and inadequate government spending on the environment – all in line with the results from 2006.

When asked about what personal action they were ready to take to protect the environment, 73 percent of the respondents said they were ready to participate in environmental awareness campaigns and 65 percent were prepared to fully comply with environmental legislation. Regarding fiscal measures, 45 percent accept government taxes to protect the environment, while only 20 percent are willing to pay donations to an environmental protection fund.

Changes were evident on issues related to climate change in the past ten years, reflecting a higher level of awareness. The adoption of the Paris Agreement should have stimulated further recognition of the serious impacts of climate change. 93 percent say that climate is changing due to human activities and 90 percent of the respondents believe that it poses a serious challenge to their countries. This represents a 6 percent increase over ten years. 75 percent thought that their government was not doing enough to deal with climate change, similar to previous results.

83 percent say they know what the aims of sustainable development are, 98 percent think that changing consumption patterns can impact the environment, and 95 percent believe that environmental protection helps economic growth.

Results evidently show more understanding of environmental issues among the public, including their interrelation with economic and social factors. Perhaps as a result of this increased awareness, the survey indicates that Arabs are also more adamant on their governments placing more tangible steps towards environmental development.

## 2. POLICIES AND GOVERNANCE

Environmental initiatives at the regional level remain fragmented and largely ineffective. This can be attributed to problems hindering proper cooperation within regional Arab institutions, and the misperceptions caused by the inclusion of the environment as an integral component of sustainable development.

The League of Arab States (LAS) has attempted over the past decade to handle the inclusion of environment as a pillar of sustainable development. This was in line with the shift in global governance, which culminated in the endorsement of the Sustainable Development Goals (SDGs) in 2015. Historically, the Council of Arab Ministers Responsible for the Environment (CAMRE) handled this task, but its mandate was too limited to attract other players for developing regional policies. To address this gap, a Joint Committee on Environment and

Development in the Arab Region (JCEDAR) was created, with the aim to include other ministries alongside that for the environment – mainly economy, finance and planning. As this mechanism was not effective enough, a new department on Sustainable Development and International Cooperation was established in 2016 within the LAS, whose success remains to be seen.

CAMRE, under the auspices of the LAS and with the support of international agencies and specialized civil society organizations, prepared background papers for negotiations on international environment agreements, and played an active role in these negotiations, especially regarding climate change. The LAS adopted a regional Strategic Framework for Sustainable Development, in addition to regional strategies on water, agriculture, climate change and others. Those regional strategies have not significantly influenced national efforts to achieve sustainable development.

At the national level, environmental institutions have been generally strengthened, resulting in some improvements in environmental management, but with limited ability to fully address all three dimensions of sustainable development. In response, some Arab countries created national councils for sustainable development, which remained ad hoc in nature.

At the public policy front, sustainable management of natural resources was introduced to the development agenda in many Arab countries. A major shift in public policy has been the recent reforms in energy and water prices across the region, including the major oil producing countries of the GCC. In addition to reforming subsidies, the region witnessed the adoption of sustainable energy polices such as energy efficiency targets and action plans, efficiency labels for appliances and cars, green building codes, and renewable energy policies, including targets, feed-in-tariff and net-metering. However, to achieve the global goals, regional institutions need to move from rhetorical declarations to implementation on the ground, and Arab countries need to strengthen their legislative and institutional frameworks.

As the Arab region is one of the most vulnerable regions to the impacts of climate change, both economically and environmentally, the commitment of Arab countries to the international climate change process, culminating in the Paris Agreement, was evident. All 22 members of the LAS, except Syria, signed the agreement, 15 countries ratified it and 13 submitted their first Nationally Determined Contributions (NDC). However, the regional approach to address climate change risks has been unsuccessful, due to lack of political commitments to regional cooperation.

Water, food and energy form a complex web of inter-linkages, and due to their strong interdependence, policies and subsidies in one sector strongly influence the other two sectors. Arab policymakers should therefore revisit their current and future development strategies and plans with a new nexus lens. This would help achieve the mandate and targets of the Sustainable Development Goals (SDGs) and the Paris Climate Agreement. National and regional efforts to address the climate change challenge offer an unprecedented opportunity for a much-needed institutional reform to mainstream the nexus thinking in policy development and implementation.

Furthermore, to achieve social justice, universal subsidies should give way to targeted subsidies for the disadvantaged segments of Arab society. These pricing

policies should ensure that basic human needs are met, should promote resources efficiency, and recover the cost of their service provision without impacting the poor.

## 3. GREEN ECONOMY AND FINANCE

The last decade has witnessed a rather significant transition of Arab countries to green economy. From almost no country adopting green economy or a sustainable strategy, to more than seven countries that have either developed such strategies or have included elements of green economy and sustainability in their plans. Green strategies have been translated in a package of regulatory and incentive measures introduced in these countries to facilitate such a transition. This gave a strong signal to the private sector to increase investments in green economy sectors by many folds, especially renewable energy, which is evident in Morocco, Jordan and UAE, where billions have been invested in solar and wind farms. Morocco is implementing a plan to generate over half of its electricity from renewable resources by 2030.

Such a transition has been prompted by increased awareness and recognition of the real economic, social, and environmental gains resulting from transitioning to a green and sustainable economy. This is reflected in the increased job opportunities created by green investments, efficiency in the use of natural resources, competitiveness and market access. The economy can be diversified and revitalized by creating new activities and opportunities such as: renewable energy, new renewable sources of water in the form of wastewater treatment and reuse of treated water and desalination, sustainable and organic agriculture, green industrial products, sustainable communities and green buildings, green public transport system, ecotourism, alongside integrated solid waste management systems which can generate energy, produce organic compost, and re-use materials.

Egypt, Morocco, Qatar, and the UAE have already incorporated green building codes in new urban and coastal communities such as the Galala City and Al Alamein New City in Egypt, Masdar City in Abu Dhabi, and the Mohammed VI Green City in Morocco. Some public policy strategies, such as the Saudi Vision 2030, endorsed a type of natural capital accounting concepts. The Saudi Vision 2030 sets an example as a radical improvement, compared to previous more timid attempts at reform. Fiscal measures introduced by the central banks in Lebanon, the UAE and Jordan have led to a sharp increase in the number and value of commercial loans given by banks to environmentally-friendly projects. These include big projects executed by the private sector, as well as household installations boosting efficiency, mainly in the field of solar and renewable energy in general.

The adoption of the Sustainable Development Goals (SDGs) in 2015 has provided another impetus for countries around the globe, including in the Arab region, to intensify efforts aimed at developing sustainable and green strategies and policies for achieving the SDGs.

The amount of financial resources channeled to fund green investments in the Arab region has been steadily increasing, and an increasing share of total investments is expected to be directed to green and sustainable development projects in the region in the coming years. One indication of the new trend is that

financing for development operations coming from Arab national and regional development institutions during 2006-2016 amounted to USD 51 billion, nearly 57 percent of total cumulative funding (USD 90 billion) over the entire 40-year period since 1975.

However, much more is needed, as Arab countries must earmark an additional USD 57.38 billion annually, from domestic and external sources, to support the implementation of sustainable development goals. Only a small portion of this amount is available now.

## 4. WATER

Water scarcity continues to intensify in the Arab region due to limited renewable freshwater resources and deterioration in quality on one hand, and population growth and lack of funds to finance water infrastructure on the other. Moreover, water scarcity in the region has been exacerbated by an increasing frequency of drought cycles. During the past 10 years, the combined average per capita freshwater availability of the 22 Arab countries dropped from about 990 $m^3$ to less than 800 $m^3$ per year (about one-tenth the world's average). If Mauritania, Iraq, Sudan and Lebanon are taken out of the total, the average per capita availability of freshwater drops to below 500 $m^3$. Per capita water availability in nine countries is already below 200 $m^3$. Thirteen Arab countries are among the world's 19 most water-scarce nations. This means that about 40 percent of the Arab population is already living in conditions of absolute water scarcity.

Most Arab countries continue to rely heavily on groundwater resources to meet their rising demands, particularly for irrigation and domestic use. Currently, all renewable groundwater resources in the region are experiencing water level decline and quality deterioration, while non-renewable groundwater basins are experiencing fast depletion. Desalination continues to emerge as a major water source in the region, especially in energy-rich countries. However, desalination technology and equipment remain imported, with limited added value to the economies of the Arab countries.

Reuse of treated wastewater has generally been limited across the region, despite the scarce conditions and the relatively large volumes generated, representing major lost opportunities. While 60 percent of wastewater is treated, more than half of the treated water is discharged and not re-used. In the past 10 years, a clear trend of competition on water use among different sectors could be observed, where the region's overall percentages of sectoral water utilization have been shifting from the agricultural sector towards the municipal and industrial sectors, reflecting rapid urbanization and industrialization trends in the region, which are expected to continue in the future.

During the past 10 years, the proportion of the Arab population with access to safe drinking water has improved from 85 percent to 90 percent, nearing the global average. This was achieved in most parts of the region, except in the Mashreq where the proportion of the population with access to safe drinking water has deteriorated during this period, decreasing from 94 percent to 88 percent. Challenges in these countries are attributed mainly to military occupation, civil conflicts, and insufficient investments. Access to improved sanitation facilities has considerably increased in the past ten years, reaching 85 percent of the population.

As the supply side management has reached its technical and financial limits, several Arab countries have started to make a more effective shift in their water policies to demand management and conservation, with economic tools being increasingly used to materialize this shift. Water subsidies have been reformed in many countries from general to more targeted, a move which is expected to enhance water use efficiency and increase cost recovery.

The past 10 years have witnessed major regional and sub-regional initiatives. The Arab Ministerial Water Council (AMWC) was established in 2008 within the Arab League, and in 2010 it released the Arab Water Security Strategy 2010-2030. At the sub-regional level, in 2016 the GCC Unified Water Strategy 2016-2035 was launched. The development of both strategies represents a major milestone for coping with the water scarcity in the arid Arab countries. Success needs fast implementation and higher levels of regional cooperation.

## 5. FOOD SECURITY

Agriculture and food production cannot function without a healthy environment and a conducive climate. Food security has deteriorated further in several Arab countries over the last 10 years, despite some advances in others. The Arab region continued to be the largest food deficit region in the world, with an ever-growing food gap between domestic production and consumption. In terms of monetary value, the total Arab food gap has increased drastically from USD 18 billion in 2005 to about USD 29 billion in 2010 and USD 34 billion in 2014. The growing food gap is due to several interrelated factors and developments in the Arab world. Specifically, those include high population growth (2.3 percent annually compared to 1.9 percent in developing countries); low agricultural productivity due to poor investment in science and technology and in agricultural development; further natural resource degradation; climate change implications, mainly less precipitation, more frequent droughts, higher temperatures, shorter growing seasons and seawater intrusion; high food wastage, at about 35 percent; and widespread political instability and civil strife in several Arab countries in the last six years, and a resulting rural to urban and overseas migration. Due to the civil war in Syria, for example, the overall financial cost of damage and loss in the agriculture sector over the 2011-2016 period is estimated at over USD 16 billion.

The quantity and quality of both surface and ground water resources deteriorated drastically due to climate change and poor water management, including non-sustainable utilization. Salinity already contributed to exacerbated land degradation and desertification in vast areas of the Arab world. With the exception of Oman and Jordan, Arab countries invested less than 1 percent of their GDP on agricultural research and development (R&D). Despite their high agricultural growth potential, Algeria and Sudan seriously underinvested in R&D, each spending only 0.2 percent of their GDP on agricultural research, which is insufficient given the importance of agriculture for their national food security and economic growth.

While taking into account the current overall food security risk, Arab countries were categorized by the International Food Policy Research Institute (IFPRI) based on economic and social development. In this regard, the categorization is assessed following two major indicators: a macro-economic status of the trade balance and a micro-household nutritional and health status level as measures of food insecurity. Another important forward-looking classification is based on the natural resources and agricultural potential of Arab countries to enhance food

and nutritional security. Arab countries with high agricultural potential include Algeria, Egypt, Iraq, Morocco, Sudan and Syria; those with medium potential are Mauritania, Saudi Arabia, Tunisia and Yemen; limited potential countries include Jordan, Lebanon and Libya; while Bahrain, Kuwait, Oman, Qatar and the United Arab Emirates fall in the extremely low potential category.

The current agricultural productivity in all Arab countries is way below their potential and even below the average of developing countries globally. Thus, it is essential for Arab countries to tap into their full agricultural potential to bridge the yield gaps and promote regional collaboration based on their comparative advantages to enhance food security. This will close the growing gap between domestic food production and consumption to reduce the rising food imports and enhance food security, while strengthening collective cooperation.

## 6. ENERGY

The Arab region's rapidly growing domestic energy demand challenges its traditional energy policy. In 2014, the region accounted for 5.1 percent of the world's total primary energy supply and 7.8 percent of its carbon dioxide emissions, much of it generated in the Gulf Cooperation Council (GCC) countries. This pattern has led to position some GCC states among the world's top carbon dioxide emitters.

Current trends of energy use put the Arab economies among the least efficient globally. Average losses in generation, transmission and distribution of electricity are 19.4 percent, which is more than double the world average. Growth in energy consumption has been 8 percent, which is twice as fast as the average economic growth. Energy efficiency, therefore, presents ample opportunity for achieving energy savings in Arab countries.

For decades, the energy sector has been playing a crucial role in the Arab region's development, with oil and gas making up over 25 percent of the total Arab GDP, and bringing in more than 70 percent of the combined government revenues. Fossil fuels also dominate the domestic energy mix, with oil and natural gas accounting for around 95 percent of the region's own energy needs. Still, over 50 million Arab people have no access to modern energy services.

All Arab countries are highly vulnerable due to overdependence on oil, and have embarked on programs to diversify the economy. Saudi Arabia launched Vision 2030, which aims to boost non-oil revenues six-fold to USD 266 billion by 2030, along with bold plans to better manage natural resources, phase out subsidies and enhance energy efficiency. Major energy subsidy reform plans have been endorsed in eight Arab countries.

Although many Arab countries have made remarkable strides towards promoting renewable energy, its contribution in the energy mix remains marginal, at about 3.5 percent. However the outlook for wind and solar power in the Arab region is mostly positive, provided further policy reform continues to incentivize investment in new sources of energy. The International Energy Agency (IEA) projects that renewable generation in the Middle East will double in size between 2013 and 2020. Most big developments are expected to be in Saudi Arabia, which announced plans to produce 9.5 gigawatts of renewable electricity by 2023 and 54 gigawatts by 2040.

Most Arab countries have announced national renewable energy targets. Morocco's clean power target of 52 percent by 2030 stands out as the most ambitious in the Arab region. Twelve Arab countries have announced targets for renewable energy, including the UAE, Jordan, Algeria, Egypt, Saudi Arabia, and Tunisia, which announced ambitious targets in excess of 20 percent. In addition, several countries have adopted different kinds of policy measures to enhance energy efficiency.

The discovery of large gas deposits in the Eastern Mediterranean is expected to boost economies of the countries concerned, and provide a source of less polluting energy, as a bridge towards clean renewables. The industry, however, should follow strict rules that take into account the fragile nature of this almost locked sea.

Fast-growing energy demand in the Arab region, coupled with prospects of the Middle East becoming a global economic center by 2030 alongside the Asia-Pacific region, necessitates diversifying energy sources in order to move to a more sustainable energy sector. However, the energy mix model needs not to be used as a pretext to introduce additional environmentally-harmful fuels such as coal. Nuclear energy is another source which some Arab countries have been attempting to bring in, under the label of energy mix. Both need to be examined with close scrutiny to evaluate real benefits and risks, at a time when the overwhelming global trend is to phase out existing coal and nuclear plants and hold back on new ones.

Achieving sustainable energy requires decoupling economic growth from resource utilization through efficient use, the decarbonization of the energy mix to reduce the carbon footprint, and the eradication of energy poverty to achieve social equity and remove disparity in energy and economic indicators.

## 7. AIR QUALITY

Air quality in the Arab countries has deteriorated over the past few decades. Emissions of carbon dioxide ($CO_2$) have nearly doubled. Changes in the power sector were driven by strategies that have been successfully implemented in many countries in the region to improve energy access, leading to more fossil fuels being burnt in the thermal power plants to meet the increase in power demand. Electricity consumption has increased by 75.5 percent, leading to a total amount of 766.5 million tons of $CO_2$ being emitted in 2015, compared to 436.6 million tons in 2006. Emissions from the transport sector have increased due to the substantial growth in the sector, with no effective mitigation measures and weak public transport in most countries.

A study conducted in major cities in the region claims that the unrest in some countries has led to a drop in emissions. This might hold for some gases due to the slowing of industries and personal transport, but dust and other pollutants resulting from conflicts have obviously increased.

The Arab region was among the worst performers in air quality, according to the World Health Organization (WHO). Recorded levels of air pollution often exceeded 5 to 10 times the WHO limits, and several Arab cities are among the 20 most polluted cities in the world. Excessive emissions include carbon monoxide that results from the transport sector, oxides of sulfur and oxides of nitrogen, leading to the formation of acid rain, ozone, and volatile organic compounds

(VOCs). Reduction of sulfur content in diesel fuel in most Arab countries has been achieved by tightening the standards, which resulted in a drop from levels as high as 1000 ppm to around 50 ppm. Also, a shift to unleaded gasoline has been achieved by implementing cost differentials, followed by a complete ban on the use of leaded fuel.

Mitigation measures that could be implemented to further reduce emissions from the power sector include enhancements of fuel quality and deployment of renewable technologies and energy efficient devices. Most Arab countries are developing a viable market for renewable energy investments. Between 2012 and 2015, total renewable installed capacity witnessed a 150 percent increase, exceeding 3GW, excluding hydropower, compared to 1.2GW in 2012.

Most sustainable transportation strategies fall into one of three categories: vehicle/fuel technology enhancement, road/vehicle operations improvements and demand management. A formal, mass transport system is yet to be implemented on a wide scale in the region. Gasoline engines generally produce less harmful emissions compared to diesel, thus tightening the standards related to petrol quality will lead to a substantial reduction in emissions.

The successful introduction of hybrid and electrical cars in Jordan over the past eight years is a shining example of how targeted fiscal policies can influence the market. Within a few years a package of tax exemptions on cleaner cars, and greater levies on those with higher emissions, helped boost the number of hybrid and electrical cars in Jordan to half of those newly registered.

## 8. ENVIRONMENTAL RESEARCH

The Arab world is facing many environmental pressures ranging from challenges in resource management and water shortage to pollution and climate change, which all require serious scientific research. Arab nations contribute 1.7 percent of the total value of budgets embarked for environmental research worldwide. Egypt, Saudi Arabia, Morocco and Tunisia are the most active research countries in general science and environmental research. Scientific research has increased in the last ten years, with Egypt leading the Arab world, followed by Saudi Arabia for both the number and rate of publications produced. Egypt has contributed at least double the amount of publications compared to other Arab countries since 2008, effectively contributing on average 26 percent of environmental publications cumulatively by 2015. This can be attributed in part to the size of Egypt's population, accounting to a quarter of the Arab countries combined. Saudi Arabia has been enjoying a linear increase in research rates since 2008 (1.67 percent average annual document contributions per year), followed by Morocco (0.59 percent), Iraq (0.35 percent), and Qatar (0.18 percent).

Health and pollution as well as water science and technology are the fastest growing research subjects under environmental science in the Arab world, where research has increased twofold on average since 2008, with Egypt leading the Arab world in both disciplines. The slowest growing subjects are climate change and environmental policies, as well as biodiversity and conservation.

Beyond the numbers, results of research projects and publications in Arab countries are rarely reflected in policies, and they seldom contribute to solutions to environmental problems. In contrast to the weak contribution and impact

of researchers working in the Arab countries, Arab researchers working abroad contributed well in many areas related to environmental science, with a profound impact on society.

The enhancement of environmental research to produce impact in the Arab countries requires creating enabling conditions and a stimulating work environment, and linking research to policy. A fundamental step towards achieving this goal is building an infrastructure that connects research institutions, industry and society and creates an integrated system that ensures sustainable development. Budgets dedicated to environmental research should be enhanced, centers of excellence created, and research collaborations among Arab countries and with other centers worldwide strengthened. Publication mechanisms for research institutes have to be improved and modernized in order to facilitate the publication process. In order to fill a growing gap, research in the areas of policy development and climate change should be encouraged. Finally, in order to reverse the brain drain caused by a large proportion of Arab students who study abroad never returning, investment in young researchers and intellectual capital should be promoted.

## CONCLUSION

Although the Arab environment continued to deteriorate, there has been slow progress on some fronts. But even this little improvement is threatened to be wiped off by conflicts, wars and instability.

In order to ensure a successful transition to better environment as a main pillar of sustainable development, Arab countries urgently need to translate their many political declarations and regional strategies into tangible programs of action. Regional cooperation among Arab countries needs to be promoted, including joint projects in the fields of water, energy and food production, as well as research, education and capacity building.

Environmental components and resources have to be valued as assets, attaching a monetary value for resource depletion and pollution, and including those in national budgets. It is necessary to adopt prudent governance which embraces stable and predictable fiscal policies, regulations and market incentives, and encourage domestic and foreign investment in green infrastructure projects.

Ultimately, political stability and security in Arab countries is a necessary requirement for the formulation and implementation of long term strategic sustainable development plans which embrace the environment.