IMPLEMENTATION OF CLIMATE CHANGE-RELATED STATISTICS IN SUPPORT OF THE SDGS IN THE ARAB REGION

Economic And Social Commission For Western Asia

UNITED NATIONS

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ESCWA

Expert Forum for producers and users of climate change-related statistics

2-4 October 2018, Geneva

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Consecutive Records on Global Warming in the

The Region Has Been Subject To Extreme Climate Events, Such As Droughts, Floods, Dust Storms And Intense Heat Waves

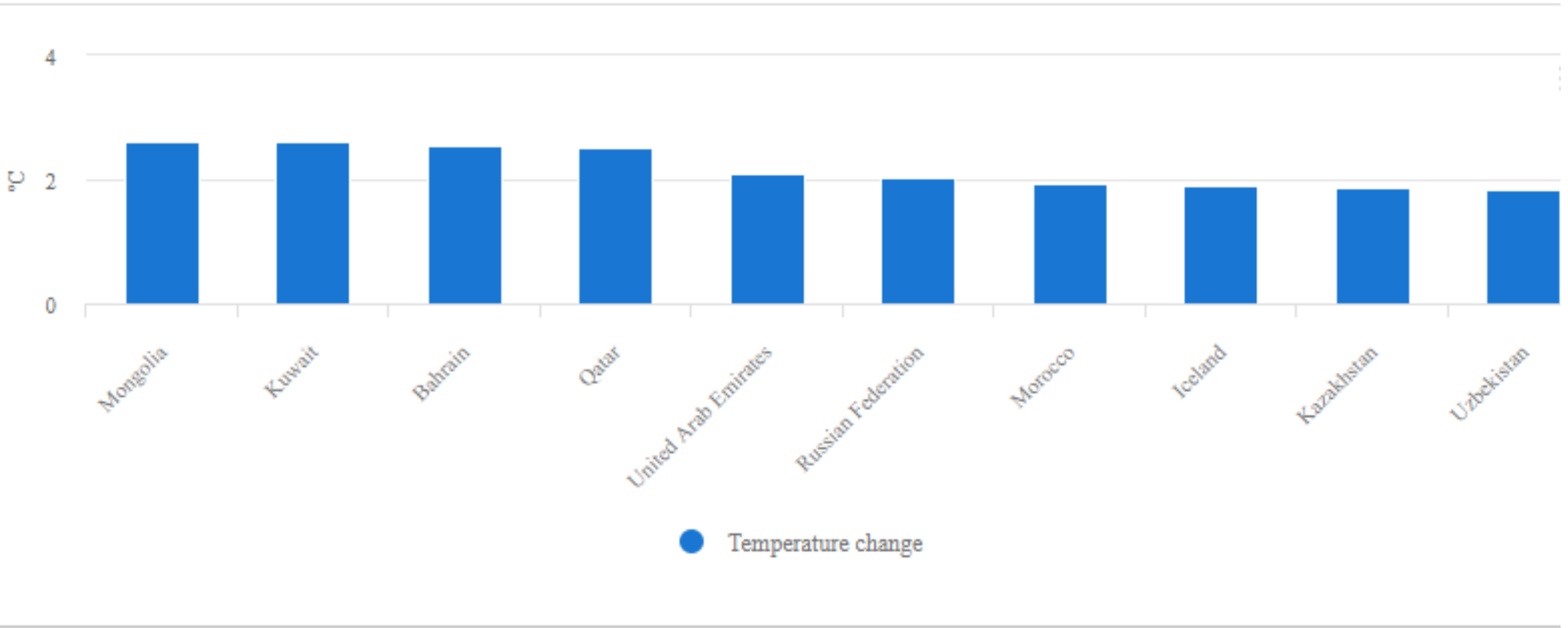
Record Temperatures Occurred In Parts Of The MENA, 54 Celsius In Mitribah, Kuwait, On 21 July 2016 - The Highest Temperature On Record For Asia

Other Extreme Temperatures Included 53.9 Degrees Celsius In Basra, Iraq, High Temperatures Reported In Libya, Morocco, Tunisia, UAE

Models Using High-resolution Regional Climate Model Simulations Have Projected That Extremes Of Wet-bulb Temperature In The Region Around The Arabian Gulf Are Likely To Approach And Exceed A Critical Threshold, Which Defines A Limit Of Survivability For Human Beings Under The Business-as-usual Scenario Of Future Greenhouse Gas

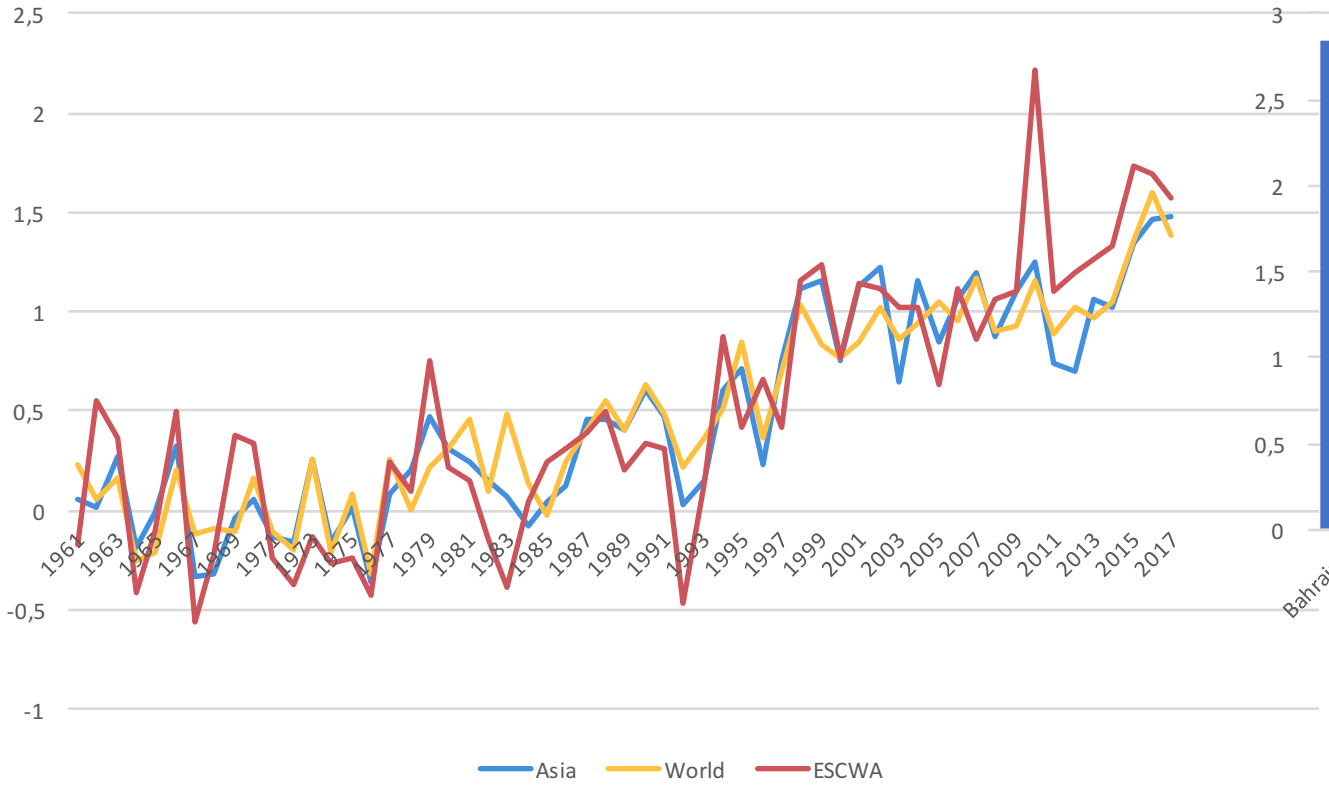
http://www.unescwa.org/sites/www.unescwa.org/files/events/files/8th_cc_negotiation_workshop_info_note_31march17.pdf https://library.wmo.int/opac/doc_num.php?explnum_id=3414.

New Data: 5 of Top 10 Mean Temperature Change of Meteorological year 2017



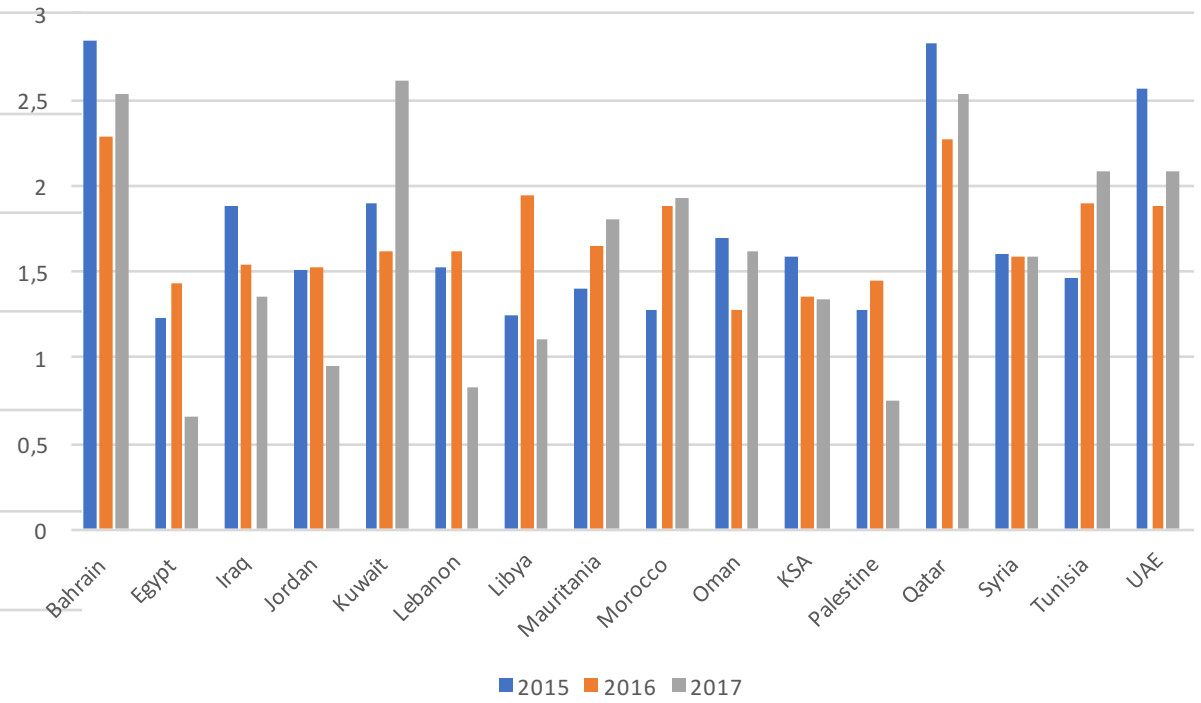
http://www.fao.org/faostat/en/#data/ET/visualize

Temperature Changes with respect to the Baseline Period* from 1961 - 2017 for the World, Asia & ESCWA Countries



Unit: Degrees Celsius
Source: Food and Agriculture Organization(FOA) of the United Nations. Link: http://www.fao.org/faostat/en/#data/ET/visualize
Baseline Period*: The data provide information on monthly, seasonal and annual mean temperature anomalies, i.e., temperature changes with respect to a baseline period, 1951–1980

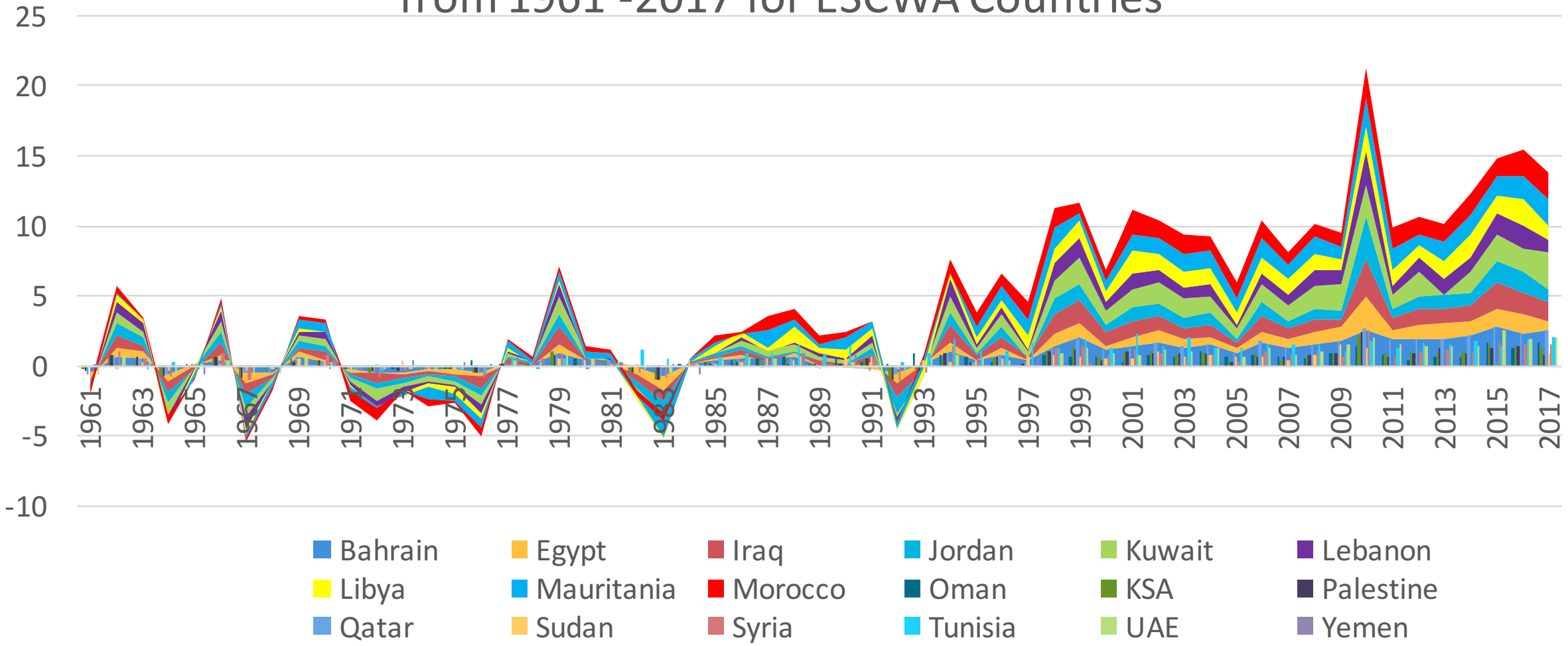
ESCWA Countries Temperature Changes Over the Past Three Years (2015/16/17)



Unit: Degrees Celsius
Source: Food and Agriculture Organization(FOA) of the United Nations. Link: http://www.fao.org/faostat/en/#data/ET/visualize

The FAOSTAT temperature change database contributes to the set of climate change relevant statistics that are being developed by UNECE and UNSD in cooperation with FAO.

Temperature Changes with respect to the Baseline Period* from 1961 -2017 for ESCWA Countries

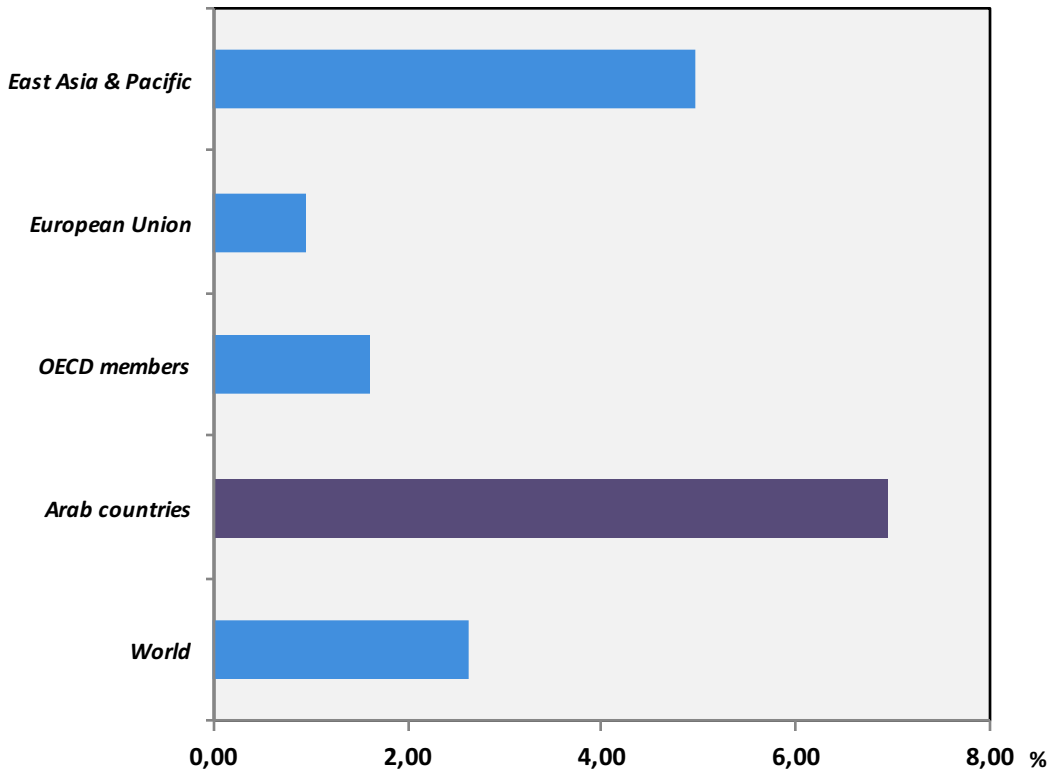


Unit: Degrees Celsius

Source: Food and Agriculture Organization(FOA) of the United Nations. Link: http://www.fao.org/faostat/en/#data/ET/visualize

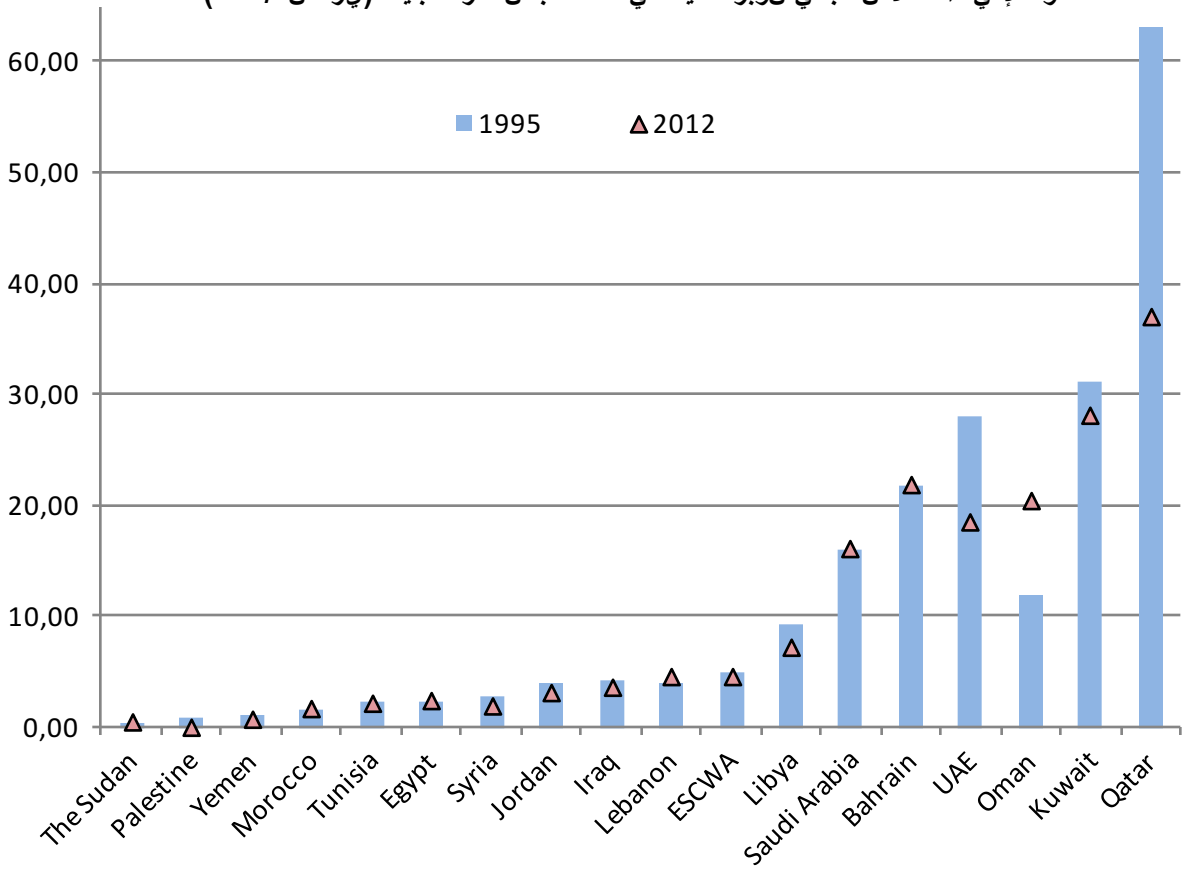
Baseline Period*: The data provide information on monthly, seasonal and annual mean temperature anomalies, i.e., temperature changes with respect to a baseline period, 1951–1980

Figure IV. 1لكشلا
Average annual carbon dioxide growth rate, 1960-2010
2010-1960 لدعملا لدسنلا ومنلا يونسلا ةثاثاعبنا يناثلا ديسكأ نوبركلا
Average annual growth rate of CO2
1960-2010



Source: ESCWA calculations based on data from the World Development Indicators,World Bank website.

Figure IV. 7لكشلا
Carbon dioxide emissions per capita in ESCWA member States (Metric tons per year)
(ةنسلا يف ءاضعلاا نادلبلا يفنوبركلا ديسكأ يناثلا ثاعبنا نم درفلا بيصن ةلداعملا)



Source: ESCWA calculations based on data from table IV.2.

Complex relationship between climate change and governance

The Arab region contributes to 4.5 per cent to global GHG emissions,
Increase of 30 per cent in total greenhouse gas
Debate

Oil Exporters

- Refuse blame as producers of hydrocarbons emitting Carbon, with small populations, to be among world's top per capita emissions
- Wealthiest nations in per capita income
- Large Investments in renewable energies

Non-Oil Exporters

- Large budget deficits because of oil Imports
- Investment (loans and grants) in renewable energies in some countries
- Target of reaching renewable electricity production (Morocco 50% by 2025)
- Reduce fossil fuel subsidies
- Destroyed infrastructure in countries in crisis

All

Barriers of progress in the climate change Economic Policies (reduced income and increased debt due to reduced oil prices) and political challenges (removing subsides).

NSOS: Big additional burden difficult to engage in new production of official statistics

Progress on MEA

1990

As at June 2016, 7 Arab countries among non-Annex I parties had submitted their third national communication, and 4 had submitted their biennial update reports (Lebanon, Mauritania, Morocco and Tunisia), providing information on national greenhouse gas inventories, mitigation actions, constraints and gaps, including support needed and received.

In November 2016, COP was held in in Marrakesh.

19 Arab countries prepared statements of their INDCs , although they non-Annex I parties to the Framework Convention, and not formally bound to reducing GHG

20 Arab countries have signed the Paris Agreement, including 11 that have ratified

Paris Agreement Dec 2015 COP

Nov 2106 COP 22 - Marrakech Partnership for Global Climate Action

E/ESCWA/SD/2017/3

Climate Change-Related Statistics in the Arab Region A Proposed Set of Indicators Special Issue of the Compendium of Environment Statistics in the Arab Region 2017

تاءاصحلإا ةقلعتملا رُّيغتب خانملا ةيبرعلا :ةعومجم نم تارشؤملا ةحرتقملا

With a view to improving climate change-related statistics collected by national statistical offices (NSOs) in the Arab region, this report proposes a set of climate change-related indicators for compilation by all countries in the region. The set has been chosen to be relevant to the region, not so large as to be burdensome to compile, feasible given existing data and methods and consistent with international recommendations in this area. The indicators are summarized in a table at the end of the report.

Countries' concerns and comments on original List

The Scope of Mitigation and Adaptation were considered more important than Emissions Scope

Concerns about indicators related to fossil fuels and per capita indicators, as those indicators did not reflect "the real picture" in Gulf countries. ESCWA however suggested keeping fossil fuel indicators for global reporting on climate change

On impact-related indicators, floods and rising sea and river levels were of concern. Consequently, ESCWA included in the revised list under 'impacts' a new indicator on "Occurrence of extreme weather events" (table 5, indicator 13), and the effects of those events such as desertification, drought, floods, landslides, storm surge, soil erosion, and saline water intrusion.

On "Incidence and distribution of vector-borne diseases" it was suggested to include waterborne diseases, as the risks in Arab countries were clearly documented

Countries' concerns and comments on original List

- All four originally proposed indicators under mitigation were discussed and participants recommended aligning them with other global indicators, and developing indicators that were more region-specific.

Participants found that indicators related to taxes and environmental expenditure and Carbon pricing were not yet applicable in the Arab region. They proposed replacing the indicator on "Share of climate change mitigation expenditure relative to GDP" with the indicator on "Investments in energy efficiency and in renewable energies as a proportion of GDP", which is in line with means of implementation 7.b.1 of SDG 7.

On adaptation proposed indicators, most participants said that the indicator "Proportion of population living in dwellings with air conditioning" was not particularly relevant.

A new adaptation indicator was added on "Change in water efficiency over time" (table 5, indicator 18). This is a key indicator for target 4 of SDG 6 on water efficiency and scarcity.

Proposed Indicators Related to Climate Change for the Arab Region

Area	Nbr.	Energy Related	SDG	Indicator	Rationale
Drivers	1	x		Total Primary Energy Supply	Energy use is the most important contributor to greenhouse gas emissions.
	2	x		Share Of Fossil Fuels In Total Primary Energy Consumption / Fossil Fuel Energy Consumption (% Of Total)	Fossil fuel combustion is the largest source of greenhouse gas emissions.
	3	x		Public Financial Support For Fossil Fuel Production	Fossil fuel combustion is the largest source of greenhouse gas emissions. Subsidies reduce the cost of fossil fuels to consumers and, therefore, increase their consumption.
	4	X (GTF)	7.3.1	Energy Intensity Of The Economy	Energy use per unit of economic output is a useful means of tracking progress in decoupling growth of energy use from growth of the economy
Emissions	5	x		Total Greenhouse Gas Emissions	Total GHG emissions represents the national contribution to the primary cause of human-induced climate change
	6	x		CO2 Emissions From Fossil Fuel Combustion (Suggestion To Remove Fossil However, CO2 Emissions Originate For 90% From Fossil-fuel Combustion)	Fuel combustion especially fossil fuel is the largest source of CO2 emissions and CO2 is the most important greenhouse gasin terms of contribution to climate change
	7	x		GHG Emissions Intensity Of The Economy	Emissions per unit of economic output are a useful means of tracking progress in decoupling growth of emissions from growth of the economy

Area	Nbr.	Energy Related	SDG	Indicator	Rationale
Impacts	8			Temperature Departure From Normal	Departures of temperatures from historical normals are a means of tracking change in temperature over time. Surface air temperature is considered by the World Meteorological Organization-Global Climate Observing System as an Essential Climate Variable.[1]
	9			Precipitation Departure From Normal	Departures of precipitation from historical normals are a means of tracking change in precipitation over time. Precipitation is considered by the World Meteorological Organization-Global Climate Observing System as an Essential Climate Variable.[2]
	10		15.3.1	Share Of Agricultural Land Affected By Drought	Changes in precipitation patters associated with climate change are expected to lead to increased drought in the region (Verner, 2012).
	11		6.4.2	Level Of Water Stress: Freshwater Withdrawals As A Share Of Renewable Freshwater Resources	Changes in precipitation as a result of climate change will change the availability of freshwater resources. Water is a key resource in the Arab region.
	12		1.5.1 11.5.1 13.1.2	Number Of Deaths And Missing Persons Attributed To Hydrometeorological Disasters, Per 100,000 Population	Climate change is expected to increase global average surface temperatures, which is a particular concern in the Arab region where normal summertime temperatures are already high.
	13			Number Of Extreme Heat Events	Climate change is expected to increase global average surface temperatures, which is a particular concern in the Arab region where normal summertime temperatures are already high, resulting in desertification, drought, floods, landslides, storm surge, soil erosion, and saline water intrusion.
	14			Incidence And Distribution Of Vector-borne Diseases	Vector-borne disease transmission is expected to increase as a result of changes in temperature and rainfall patterns associated with climate change.

Area	Nbr.	Energy Related SDG	Indicator	Rationale
Mitigation	15	7.2.1	Renewable Energy Share In Final Energy Consumption	Production of energy from renewable sources is a means of meeting energy needs without (or with substantially reduced) greenhouse gas emissions.
	16		Investments In Energy Efficiency And In Renewable Energies As A Proportion Of GDP	Investments represent a measure of the effort on the part of governments and business to address the need to maintain environmental quality. The share of these expenditures devoted to climate change mitigation is an indicator of the seriousness with which climate change is considered.
	17		Share Of Energy And Transport Related Taxes As Percentage Of Total Taxes And Social Contributions	Taxes on energy and transportation products area means of ensuring that their prices reflect the true social cost of their use, including the costs of damages associated with climate change.

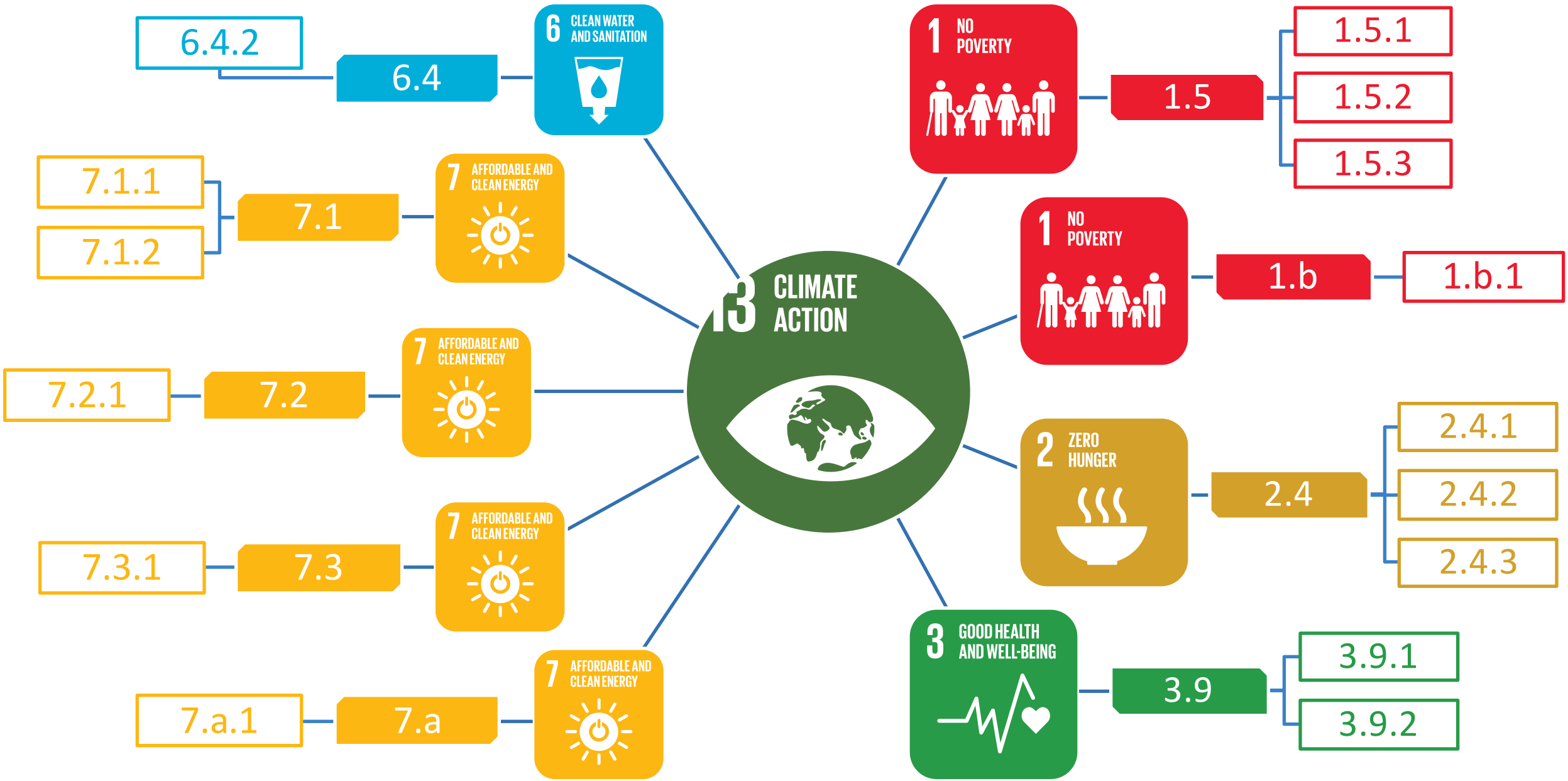
Proposed Indicators Related to Climate Change for the Arab Region

Area	Nbr.	Energy Related SDG	Indicator	Rationale
Adaptation	18	6.4.1	Change in water use efficiency over time	For inclusion: This indicator is defined as the output over time of a given major sector per volume of (net) water withdrawn (showing the trend in water use efficiency).
	19	2.4.1	Proportion of farmland area using sustainable management practices	Adaptation Rationale for inclusion: In order to cope with changing temperature and precipitation patters due to climate change, farmers will have to adopt new management practices that increase yields while requiring less water and increasing tolerance to heat and prolonged drought.
	20	1.5.3	Adoption of disaster risk management strategies	Formal disaster risk reduction strategies are a means of ensuring that the impacts of climate change have the minimum possible effect on the well-being of individuals, society and the economy.

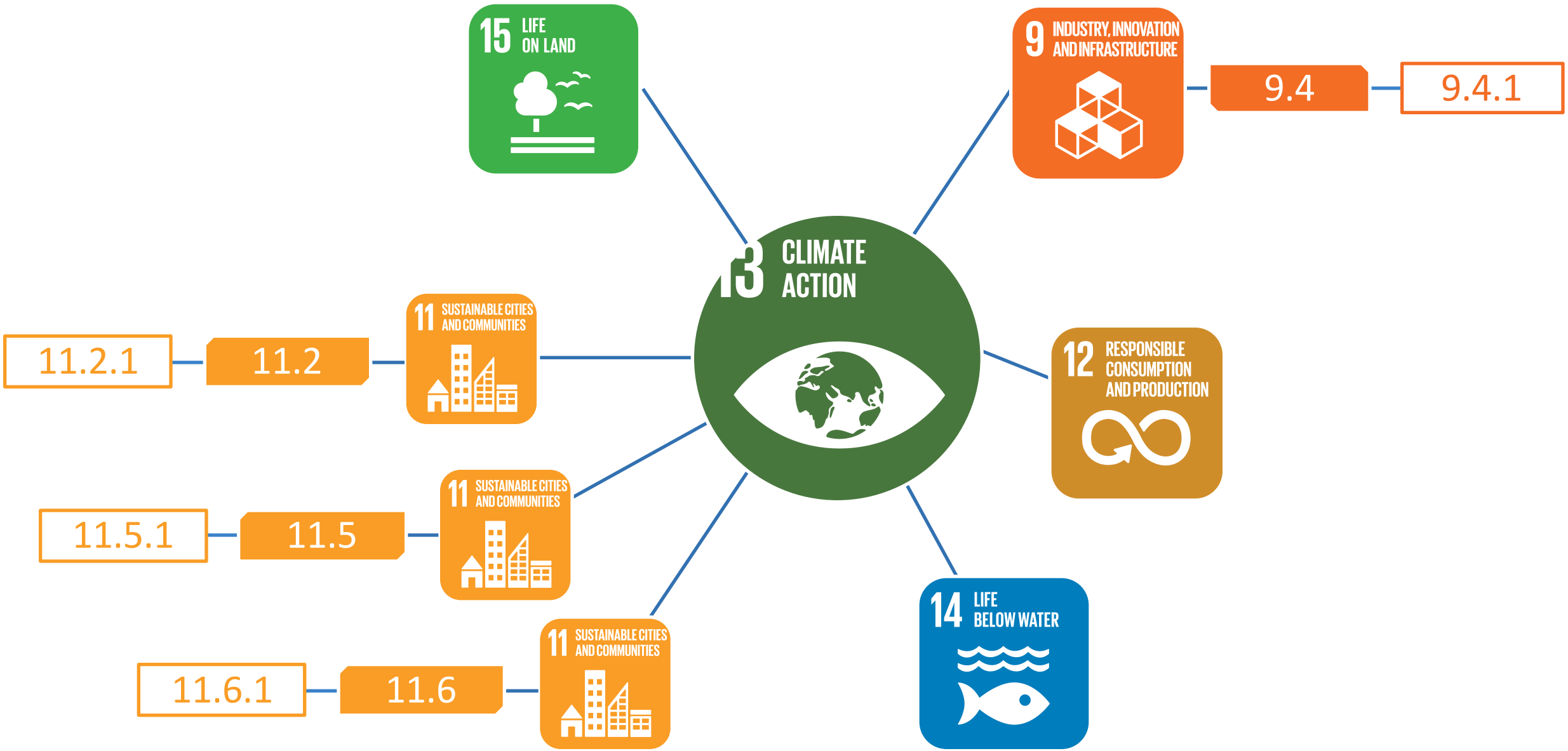
Seven of The Proposed Indicators are SDG Indicators

- Four are indicators derived from the recommended global indicators for measuring the targets of the Sendai Framework on Disaster Risk Reduction
- Proposed indicators can be produced from accounts of the SEEA-Central Framework (SEEA-CF)
- Some indicators are already produced in the countries

Interlinkages of SDG 13 with SDG Goals



Interlinkages of SDG 13 with SDG Goals



Recommendations of the Study

1

NSOs in the Arab region should give high priority to developing climate change-related statistics, cooperating with other relevant agencies and organizations. Reflecting regional priorities, emphasis should be placed on statistics dealing with adaptation and mitigation; statistics dealing with emissions can be considered a lower priority.

2

Arab NSOs and other relevant organizations in the region are invited to consider the set of climate change-related indicators proposed in this study as the basis for an Arab set of Climate Change related indicators based set of indicators proposed by the *UNECE Task Force on a Set of Key Climate Change-Related Statistics using the System of Environmental-Economic Accounting* chosen carefully to be relevant to the region, consistent with global reporting standards (the Global Tracking Framework 2017, and United Nations SDG. Changes to the set should be considered if necessary and appropriate. ESCWA will act a source of assistance in implementing.

Recommendations of the Study

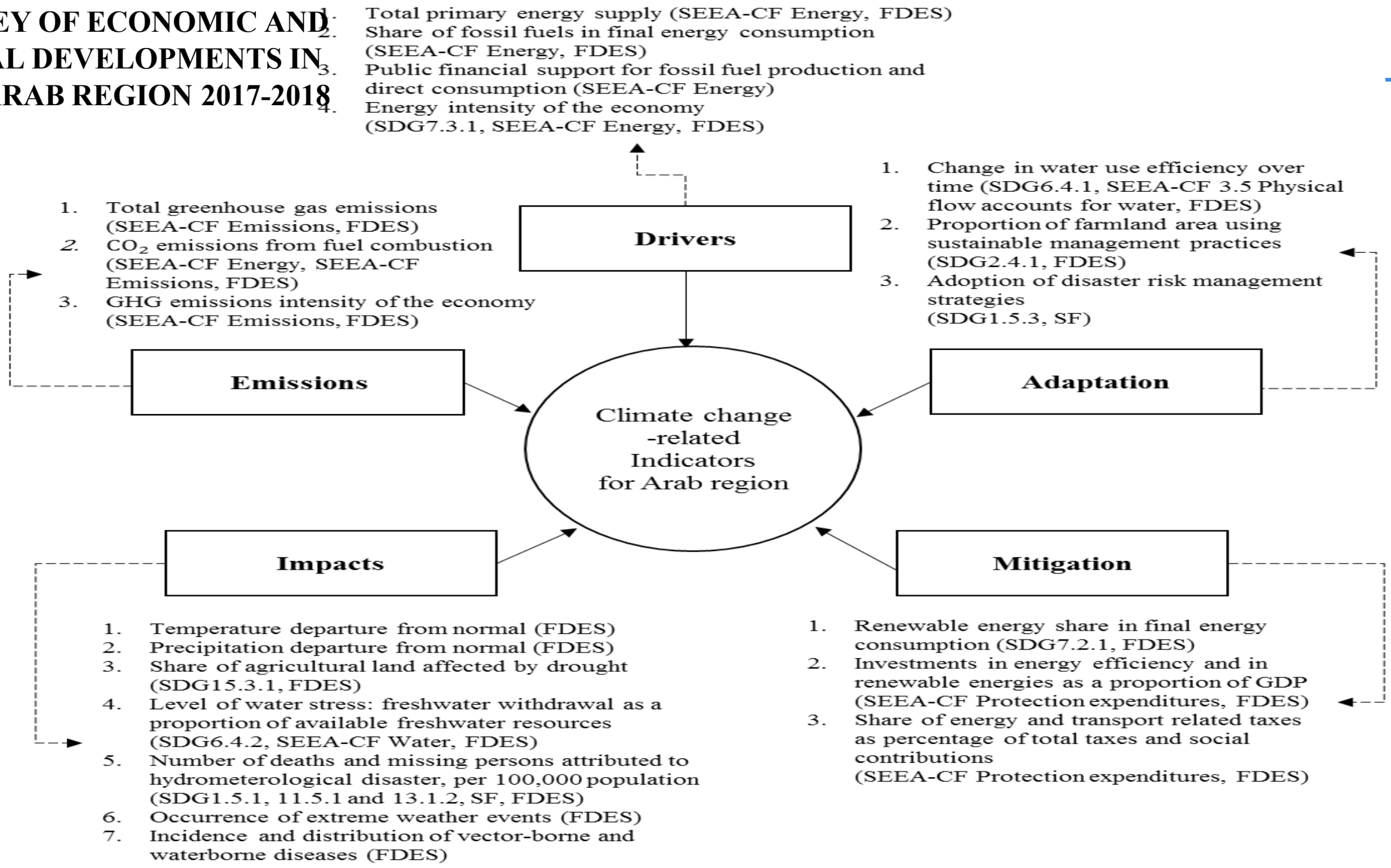
3

Arab NSOs are invited to improve methodologies in the development of climate change-related statistics as they take into consideration the recommendations by the Conference of European Statisticians of the UNECE on climate change-related statistics and those of the Statistical Commission.

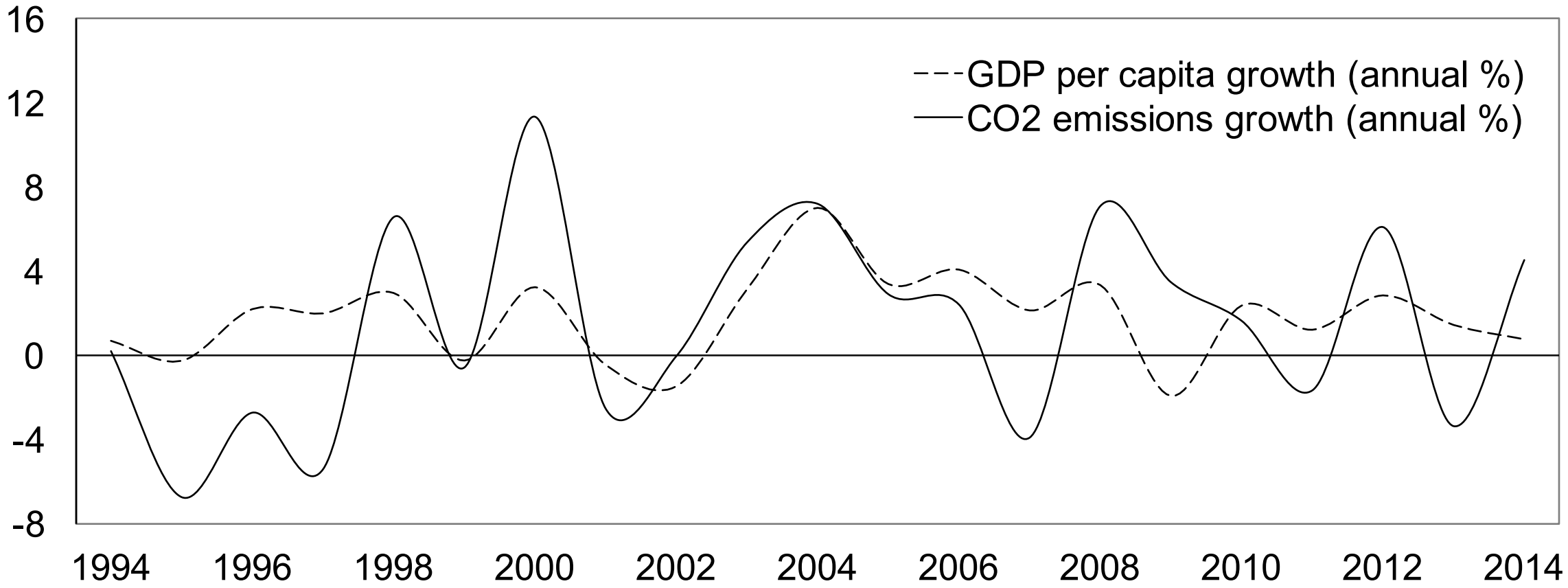
4

The study recommends to have the proposed list of 20 indicators tested in volunteering number of pilot countries to see the applicability and the difficulties in data compilation, to scale up successful pilots from other regions and/or sectors, adapting them to the local context.

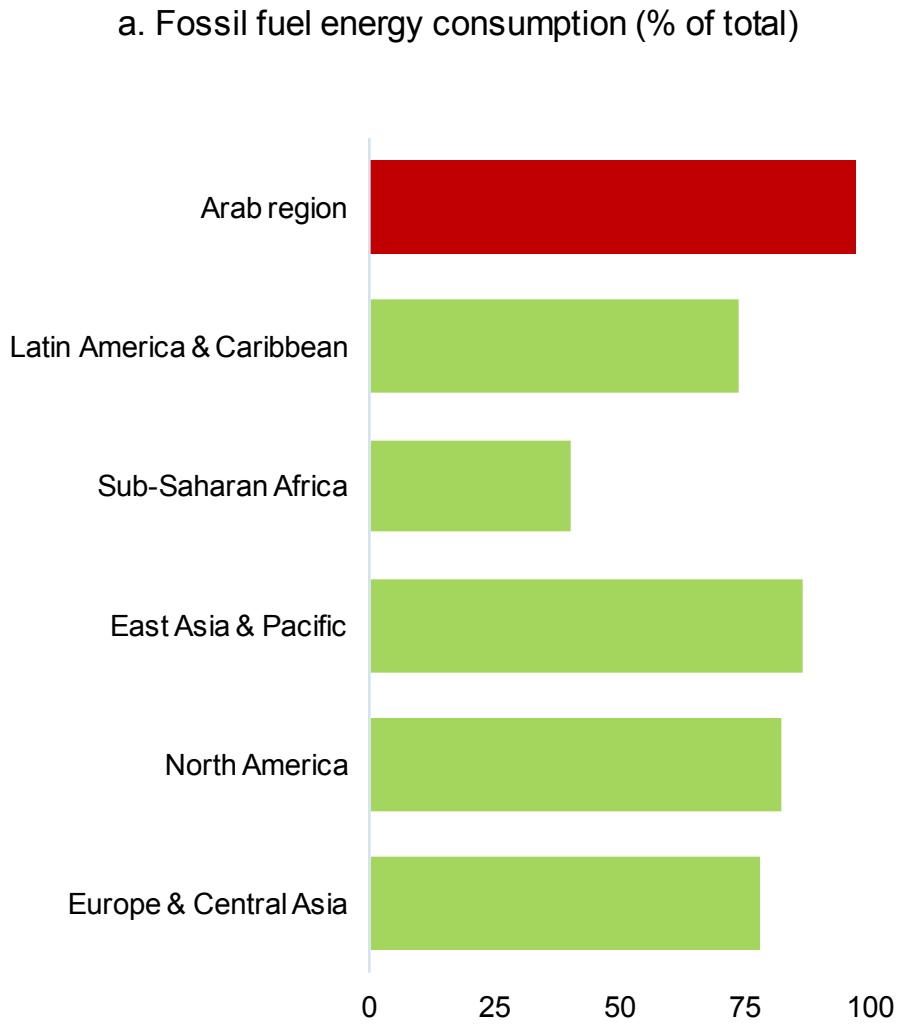
SURVEY OF ECONOMIC AND SOCIAL DEVELOPMENTS IN THE ARAB REGION 2017-2018

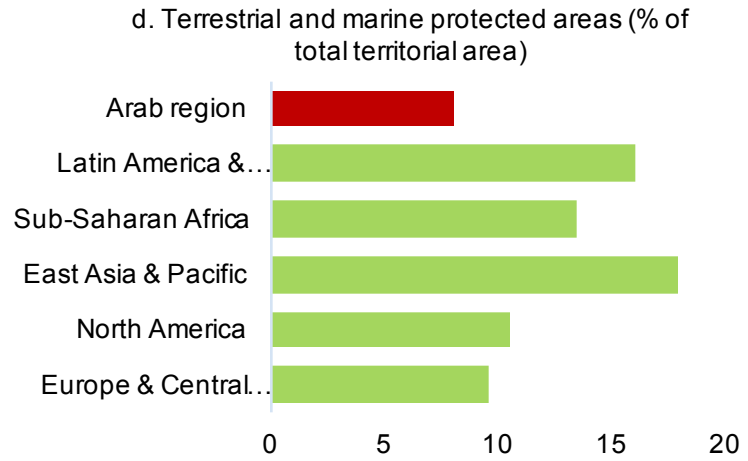


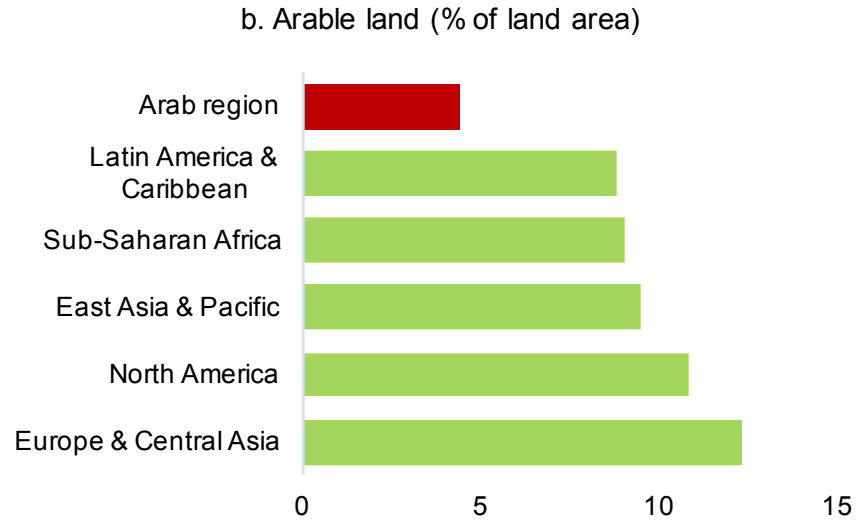
Carbon dioxide emissions vs. per capita GDP growth in the Arab region



Source: ESCWA's elaboration based on the World Development Indicators, accessed 25 April 2018.
Climate change vulnerability: Selected comparative indicator by regions







Source: ESCWA's elaboration based on the World Development Indicators, accessed 25 April 2018.

Climate change vulnerability: Selected comparative indicator by regions

Case Study Jordan

National Environmental and Economic Development Study for Climate Change 2010

Challenges and constraints

- GHG Inventories : Data Gaps
- GHG Mitigation 'Data Gaps in sectors other than energy;
- Vulnerability and Adaptation: Data gaps in climatological times series at the national stations, water resources monitoring, health data, socio-economic data
- Coarse spatial temporal resolution of climate scenarios, no regional climate models

Progress from 2010 to 2018

- In 2015, Geospatial Population and Housing & Establishment Census undertaken
- ESCWA and UN Projects and assistance: Geospatial for SDG Environment Indicators, in cooperation with the European Topic Centre of the University of Malaga, Spain (ETC-UMA) in 2018 http://www.etc.uma.es/un_escwa_etcuma/
- RICCAR, (Regional Initiative for the Assessment of Climate Change Impacts on Water Resources), FDES Implementation SEEA-Water compilation
- Many research studies by academia and research centers but not official statistics

Future Work

- More Pilot Countries for Arab Set of CC Indicators
- Regional Perspectives in the Global Set to be Developed by UNSD
- More Cooperation: UN FAO WMO UNFCCC others
- Methodologies for Mitigation and Adaptation
- Geospatial and Satellite Imagery Use in official Statistics on Climate Change

THANK YOU

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